AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

IN THIS ISSUE:

- Aerocide Dispensers Expands
- Small-Run Line for Drugs
- The Aerosol Research Story
- CMCS Meeting in Toronto
- Publicity Program for Aerosols
- CSMA Meets in New York
- Aerosols in Berlin
- Antiresistant DDT

DECEMBER, 1961

Good things come in small aerosol packages

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COSMETICS AND PHARMACEUTICALS can be loaded (cold or pressure fill) at the rate of 80 units per minute.

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Valvulas Aerosol, S. A.
Ave. Cuauhtemoc 60, Mexico 7, D. F.

Deutsche Aerosol Ventil GmbH
Orffstrasse 19/21, Nurnberg, Germany

Aerosol Research Company (Great Britain) Ltd.
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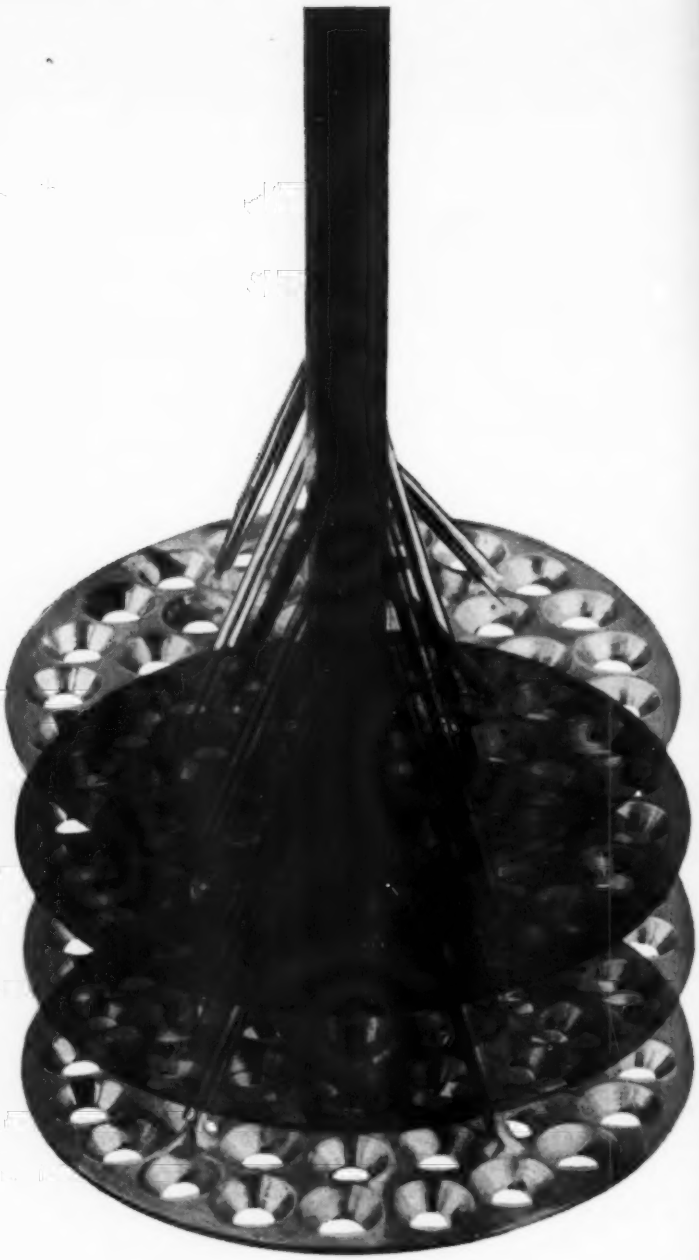

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THIS MONTH'S COVER

A new refillable spray package has been introduced for the Christmas season by Marcel Rochas, New York. Perfume atomizer holds 3⅛ drams of "Femme" or "Madame Rochas" compared with 1½ dram "purseatomizer." Entire container, 3⅛th gram version of "Mini-Mist," is manufactured by Risdon Manufacturing Co., Naugatuck, Conn. Inner cartridge, replaceable when empty, is stainless steel.

DECEMBER, 1961 VOL. 6, No. 12

AEROSOL AGE

The magazine of pressure packaging

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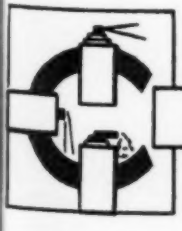

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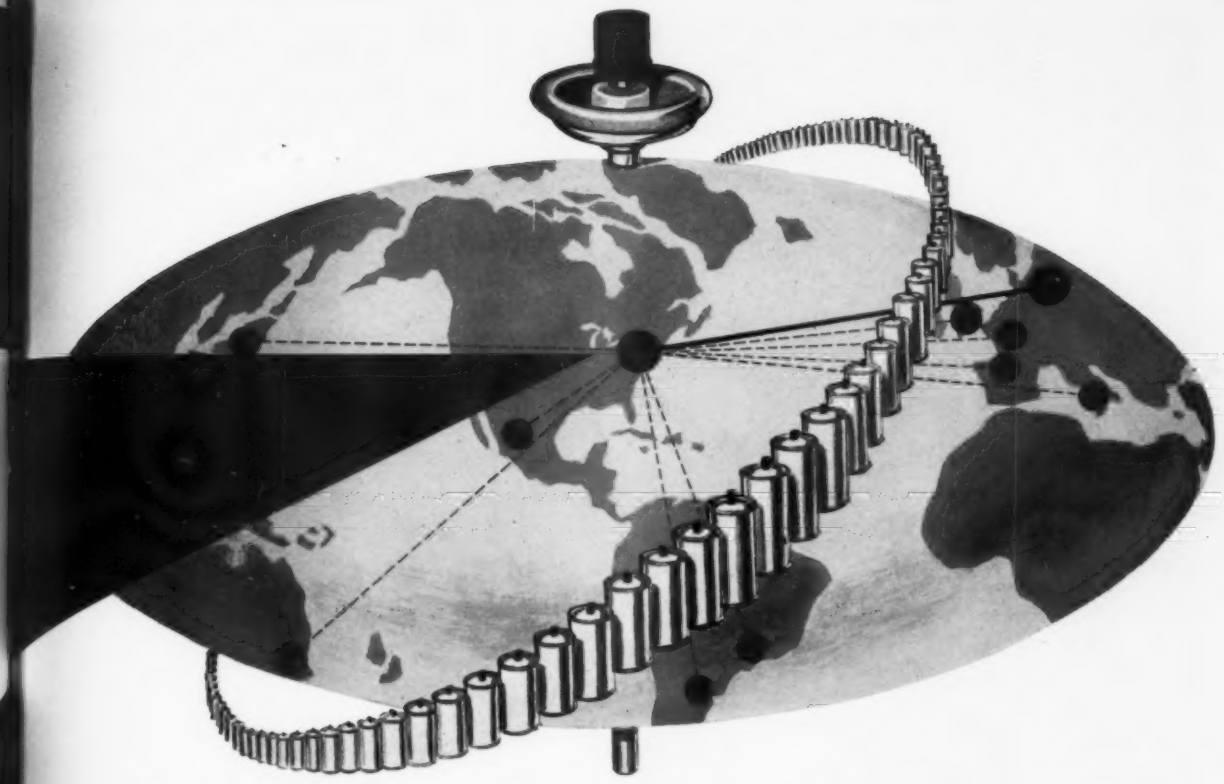

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INDUSTRY MEETING CALENDAR

Chemical Specialties Manufacturers Association, 48th Annual Meeting, Roosevelt Hotel, New York, N. Y. .....Dec. 4-6

Drug, Chemical & Allied Trades Association, Annual Dinner, Waldorf-Astoria, New York, N.Y. . .Mar. 1, 1962

Chemical Specialties Manufacturers Association, meeting of board of governors and division executive boards, Penn-Sheraton Hotel, Pittsburgh, Pa. .....Mar. 14-15, 1962

Chemical Specialties Manufacturers Association, 49th mid-year meeting, The Drake, Chicago ....May 14-16, 1962

Toilet Goods Association, annual convention, Chateau Frontenac, Quebec, Canada. . . .June 24-29, 1962

Chemical Specialties Manufacturers Association, 49th annual meeting, The Mayflower Hotel, Washington, D. C. .....Dec. 3-5, 1962

•

IFF Names New Directors

The election of four new directors was announced last month by International Flavors & Fragrances Inc., New York. Two are executives of the company: F. H. P. Trip, vice-president in charge of European operations, and Henry P. van Ameringen, who for the past two years has been associated with IFF in England and is now returning to company headquarters in New York. The other two new directors are Hugh Knowlton, Jr., partner of Smith, Barney & Co., and W. Barrett Brown, partner of R. W. Pressprich & Co., both investment bankers.

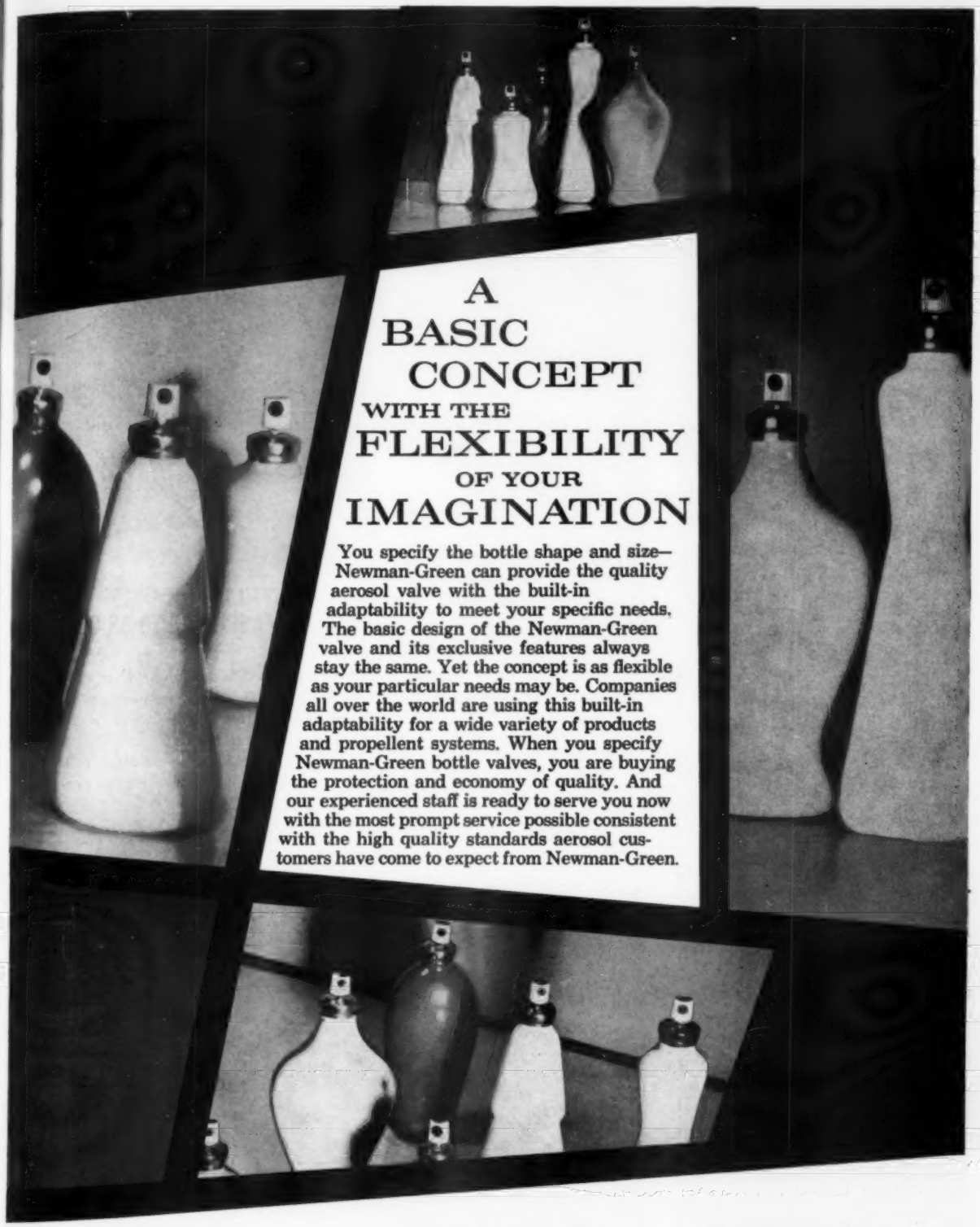
The new directors will replace Dr. H. M. Hirschfeld, who died suddenly on Nov. 4th, and Dr. M. H. deJong, G. Peter Fleck, and A. A. Schwarz, who have resigned from the Board. Mr. Schwarz, a former managing director of Polak & Schwarz, and now a consultant for IFF, announced his retirement as a vice-president of the company earlier in the year.

• **Aerocide Dispensers Expands . . .** A special **Aerosol Age** report on the largest Canadian aerosol filler begins on page 24. Plant equipment, key personnel, chief customers, and other key factors in the growth of the company are discussed.

• **Aerosol Research Co. . . .** Continuing its coverage of the leading aerosol valve makers, **Aerosol Age** this month concentrates its attention on Aerosol Research—a company which lays claim to being the second largest in the world. Exclusive plant pictures of automatic assembly units, quality control laboratory, etc., highlight the story.

• **Why and How Lederle Laboratories Set Up Its Own Aerosol Line . . .** Custom fillers and private label marketers will want to take a careful look at this article (on page 32) for one major company's answer to the question: "Whether or not to install its own filling line?".

• **CMCS Meets in Toronto Aerosols in Berlin, and More Pictures of the International Aerosol Congress . . .** The strong international flavor of the aerosol industry is reflected in these three separate articles. On page 39 is a story, with photographs, of the CMCS meeting in Canada. On page 46 is an article by this magazine's European representative on the strong aerosol representation at the German Soap Fair. And finally, on page 50, are some photographs of display booths and attendees at the third International Aerosol Congress.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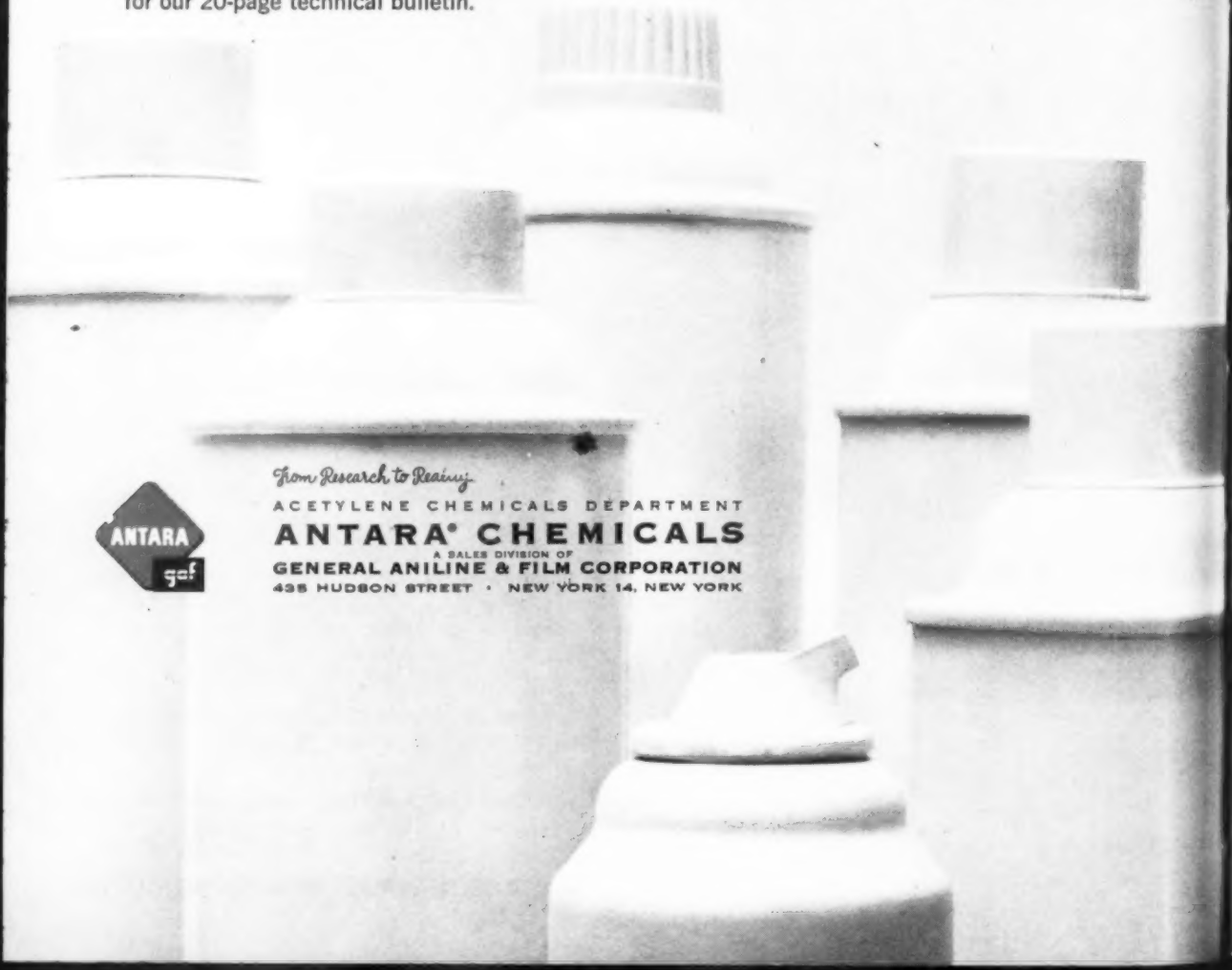

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GLADE MIST'S self-contained, one-piece VCA Valve and Specially Designed Actuator simplify air freshener dispensing problems, assure positive, repetitive directional control . . . quickly and inexpensively.

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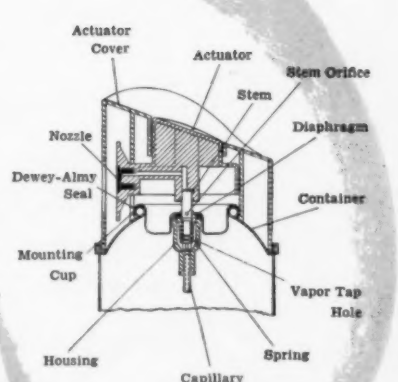

VCA INCORPORATED

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CSMA 1964

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- Increased overrun
- Improved stiffness and stability of product
- Better color retention
- Less weeping or drainage
- Finer, more uniform bubble structure

FOOD PROPELLENT

What foods can you load with C-318?

"Freon" C-318 works best with food products of low to moderate viscosity that are to be sprayed or foamed. It's suitable, too, for entirely new uses such as salad dressing, whipped butter, cream cheese and dessert toppings. You'll doubtlessly think of others!

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"Freon" C-318 is the latest in a long line of aerosol achievements in research, production and marketing . . . the kind of industry advancement you've come to expect from Du Pont. For information on "Freon" C-318 or other quality propellents, write: E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division, N-2420, Wilmington 98, Delaware.

*Freon is Du Pont's registered trademark for its fluorocarbon propellents.

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for Aerosol Cans

- Guards against sampling
- Easily torn off for use
- Cannot be repositioned
- Assures full content
- Is transparent
- Used with conventional cap
- Low in price

* patent pending

√ The seal Cannot be repositioned

This new tamper proof seal will assure you and your customers of full content, guard against indiscriminate sampling, prevent premature release of product. The closure is easily torn off for use of the product, *but* after removal, the seal cannot be repositioned.

Your aerosol product is more attractive to the jobber and dealer . . . he can assure the retailer that his shelves are not filled with partially empty packages — and that the activator button cannot be pilfered.

You can seal the can immediately after filling — open vents along the lower edge of the cap permit ready drying of the valve cup after passing through the water bath on the filling line.

The caps may be used with any standard 1" valve cup — they will clear most valve activators now on the market.

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EDITORIALS

The Straight and Narrow . . .

THE climate in Washington is so peculiar that it is not uncommon for the policies of a major government agency to fluctuate considerably over a 24, 18, or even 12 month period. Changes in the political atmosphere, personnel shifts, agitation from consumer or other pressure groups, and other factors can all influence directional swerves in agency policy.

Up to now, however, there has been nothing but disappointment for the optimist who looks for a softening of the tough government line on advertising, packaging, and the "rights of the consumer." Instead, every indication points to an even tougher time for the marketer.

Lest our readers be misled by headlines, it seems obvious that: (1) there is *no* organized plot by marketers to fool their customers, and (2) in a non-election year, Senator Kefauver and Hart have *not* merely been sharpening political axes. The first of these charges is reflected in the news slant of stories originating in the daily press, and the blame can perhaps be shared equally by the office of Sen. Kefauver (whose speeches are written this way) and on those editors of the daily press who have little knowledge and no appreciation of packaging problems. Sen. Kefauver's forays have taken him into the packaging as well as pharmaceutical industries. The second of these fictions is being spooned out by the trade press (particularly the *drug* trade press), which appears convinced that there is no merit in any of the charges and that this is all merely a plot to "get" the drug industry.

It seems unnecessary to say here that neither approach is doing its proponents much real good. At the National Packaging Forum in October, Sen Kefauver declared that the newest probe on packaging (currently conducted by Sen. Hart) comes down to a question of "what happens in a free competitive system when guile is rewarded *instead* of honesty and forthrightness . . . When unethical practices become good business, we are in trouble." Examined in this light, the entire question becomes one better examined by individual packaging executives in terms of their own company's packaging. The answer should hinge directly on whether the consumer *is* being misled; for if an alerted customer becomes convinced he is, then that company's product is doomed. This is a situation in which each company would be advised to examine its own conscience.

A Few Well-Deserved Words . . .

ALTHOUGH this column is traditionally sparing of words of praise (as are most reputable editorial columns) every so often the "Great Stone Face" must be softened a little to hand out small amounts of deserved praise. Since this issue of *Aerosol Age* will "hit the streets" during the annual convention of the Chemical Specialties Manufacturers Association (see page 31), the time has come to pay a small tribute to the association's outgoing 1961 president, Charles E. Beach.

During a trying time of legislative activity for the association—and for the aerosol industry—Mr. Beach has succeeded in representing the CSMA in a statesmanlike fashion. He has been implicitly fair in questions which may have affected his own company, and has expended considerable time and effort to do a tough job with considerable bearing and skill. We would venture the opinion that the Food and Drug Administration, the N. Y. Fire Department, and other government agencies have been considerably enlightened about the CSMA through their direct contacts with Mr. Beach. He deserves the gratitude of the entire association.★

The main filling operation is conducted on these three cold-fill lines, with another smaller line at the far right. Control panel may be seen in center background (between two posts).

Aerocide Dispensers

largest Canadian custom filler, in midst of expansion, handles large and small accounts

IF THERE was ever any doubt about the fact that Aerocide Dispensers, Ltd., Toronto, is the largest aerosol filler in Canada, it was dispelled early this year when the company took over John Struthers & Co., Montreal, another major Canadian filler, as a wholly-owned subsidiary. Since that time Aerocide has been taking full advantage of its two plant status (one in each of the two major Metropolitan areas of Canada) to land accounts among the major Canadian, U.S., and British companies who market aerosol products in Canada.

Founded in March of 1950 by Carl D. Durant, still president, Aerocide Dispensers was the first aerosol custom filler in Canada. Mr. Durant's rise in the Canadian chemical specialties industry somewhat parallels the growth of that industry in Canada. He entered the field in 1942 as a salesman for Canadian Germicide Co., an affiliate of Rochester Germicide Co. In 1947, using his knowledge of insecticides (then sold as part of the Canadian Germicide line) he was a co-founder of Cardel Enterprises, Ltd., a sales organization selling bulk insecticides and sprayers to food plants, hotels, institutions, etc. In 1949 Cardel acquired a company selling refillable insecticide containers, and this led to aerosols.

Aerocide Dispensers was founded in March of 1950 with a capital investment of $500, some credit from a filling machine supplier and a can company. That year the company's staff of eight, working in 5,000 square feet of space, turned out 242,000 aerosol units. A doubling of space two years later still wasn't enough for the spurting aerosol business, and in 1954 a new plant was constructed at the company's present location on Bethridge Road, just outside Metropolitan Toronto.

The Bethridge Road plant, at 24,000 square feet, over twice the size of the previous Aerocide plant, was then the largest and most modern plant in Canada. But within four and a half years further widespread expansion of the Canadian aerosol market necessitated still further plant space for Aerocide's filling contracts Since this was the time when compressed gas and liquefied petroleum propellants were gaining popularity, Aerocide's "Plant No. 2" (18,000 square feet) was constructed with special provision for handling these propellants.

The Bethridge Road plant is up-to-date by U.S., European, or any modern aerosol standards. As with most efficient aerosol plants, it operates in a one-way directional flow of material. Components and certain raw materials are stored in the forward part of the plant, the filling operation is in the center, and the finished containers are held at the rear for shipment out the rear loading bays.

Top: Plant No. 1 houses main filling room, warehousing area, compounding room, laboratory, and offices. Plant No. 2 houses pressure filling line (for LP gases) and additional warehousing.

BUT THE Aerocide plant No. 1 is distinctive from a number of sophisticated technical standpoints. For one thing, the three cold fill lines which handle the bulk of Aerocide's production are in-line units geared to fill 60 containers per minute each. Kenneth Mitchell, executive vice-president of the company, explains that high-speed rotary equipment would be a luxury on such a line because of the "extreme variety of the Canadian filling business." The leading fillers in the U.S., he says, are often called upon to handle orders of from 300,000 to 1 million containers. In Canada, very often the normal run will be from 5,000 to 20,000, necessitating a changeover for from five to six products per day per line.

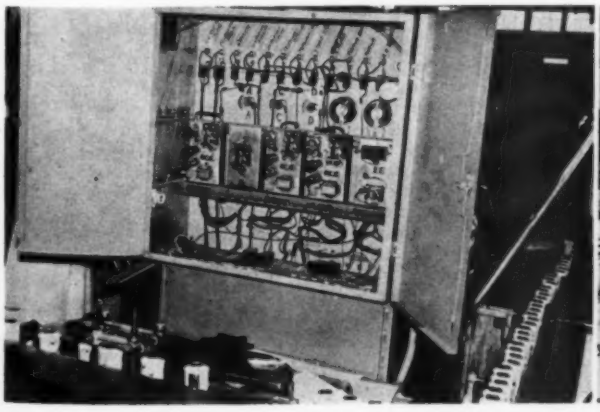
This demand for versatility has created another technical refinement in Aerocide's production. Instead of having each production unit operating on its own power and at its own speed, the entire three lines are controlled by a single instrument panel. Mr. Mitchell explains that this facilitates clean-up ("no wiring or controls under the working area of the filler, crimper, etc.") and at the same time gives far better control of line speeds at a more economical cost of operation.

Another Aerocide "improvement over standard practice" is the batching section—a separate room upstairs from the main filling room—where the products are mixed, refrigerated, and then fed through insulated piping to the filling line. The propellant is pumped from a fixed tank installation behind the plant to a double refrigeration unit just to the rear of the production line. The double refrigeration unit and a triple compressor unit behind it give Aerocide reserve capacity so that if one unit breaks down, another is immediately put into action.

Aside from the Aerocide-engineered central control panel, the three cold fill lines are unique from still another standpoint. The filling, gassing, and crimping heads are vaguely familiar as Mojonnier and Alpha units, but according to Mr. Mitchell, have been rebuilt several times from the ground up.

The second story of "Plant No.

Left: Control panel operates filling, crimping, and other units on two main cold fill lines. At right, well-equipped laboratory is used for formulation and quality control work.



Carl Durant, president of Aerocide Dispensers, started up the pressure filling operation in special ceremonies in 1959.

1" is devoted to a well equipped quality control and formulation laboratory, plus the batching operations mentioned previously. As with most qualified aerosol fillers, the laboratory maintains close statistical control of each product coming off the filling line. Formulation of new product samples for prospective aerosol customers is also a highly important laboratory function, since a major function of the filler in Canada must of necessity be the recruitment of new customers from among the marketers of non-aerosol packages.

The rear of "Plant No. 1" is largely given over to loading docks and propellant storage tanks. The latter include two large overhead tanks for fluorinated hydrocarbons, a newly completed 10,000 (U.S.) gallon heavy duty tank for iso-butane and other liquefied petroleum tanks, plus six torpedo like compressed gas storage cylinders. Underground, near the loading docks, some huge solvent storage tanks have been installed.

"Plant No. 2" is a self-contained separate plant (employee rest rooms, eating facilities, etc. are included to reduce traffic between plants). Here all of the pressure filling is done, and the line is equipped to handle fluorinated hydrocarbons, liquefied petroleum and compressed gas propellants. Line speeds range from 120 per minute (for vacuum crimp) to 150 per minute (non-vacuum crimp).

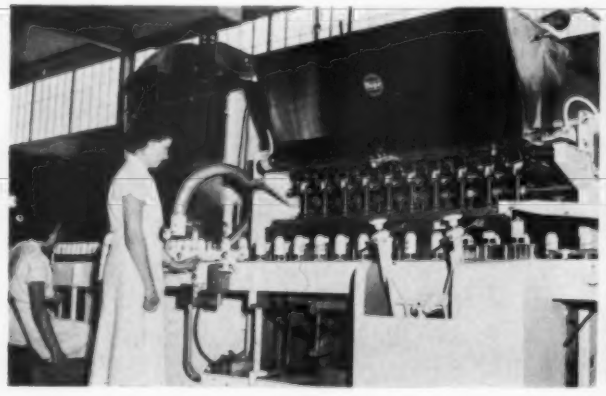
A Hope Machine 10-head piston filler begins the line, followed by a 12-head Kartridge-Pak rotary vacuum crimper. Next unit in line is a 24-head gasser-shaker designed by Aerocide's own engineers. From this impressively engineered unit the line enters an explosion proof room where a 15-head Kartridge-Pak gasser is used for liquefied petroleum gassing. Also in this room is a long spray hood where LP-powered products which require testing are sprayed before the package leaves the room. After going through a water bath the cans are capped and put in cartons.

The explosion-proof room is just one of several safety features of "Plant No. 2." A Mine Safety Appliances air sampler maintains a close check on the plant's atmosphere for signs of propellant leakage, and if it detects an overabundance of petroleum gas, sounds an alarm which shuts down the line. Also, the bottom walls of the explosion-proof room are vented to carry off small amounts of leaking gas.

In addition to Messrs. Durant and Mitchell, the key administrative personnel of the company include Ralph Legate, director of sales; G. M. Durant, purchasing director; J. E. Hart, plant manager; Thomas Tedder, manager of quality control; and William Logan, plant engineer. The two Aerocide plants employ a total of 75 people.

Total production capacity of the Bethridge Road plant on a one-shift basis is 15 million per year. The Montreal plant of John Struthers & Co. adds another 24,000-per-day

Pressure filling operation includes Hope in-line ingredient filler and Aerocide gasser-shaker. To the right rear may be seen wall of explosion proof room.



capacity with one cold and one pressure fill line.

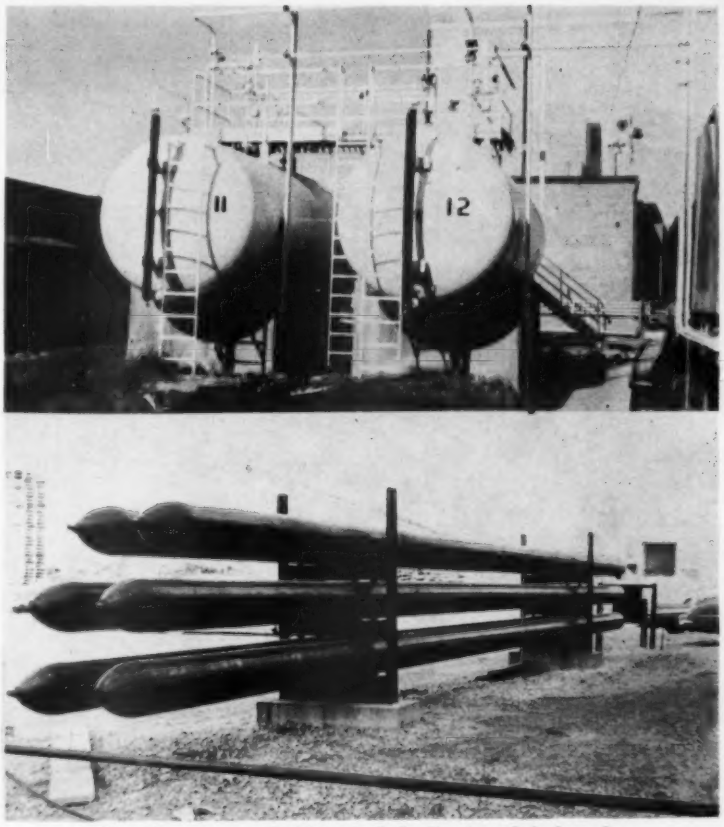
According to Ralph Legate, director of sales, the acquisition of the Struthers Co. has considerably enhanced the competitive position of Aerocide. "The marketer is able to save from ¾th to one-cent per can on freight (for products to be sold in the Montreal or Ottowa markets) if he takes advantage of our two-location filling stations. For a competitive product this cost savings can be highly important."

Mr. Legate reports that Aerocide's current customers include most of the leading marketers in Canada. He cited Colgate, S. C. Johnson, Shulton, Knomark Manufacturing Co., Lever Brothers (Airwick), Mennen, Lehn & Fink (Medi-Quick), Helene Curtis, Boyle-Midway, Rexall Drug Co., and Richard Hudnut as examples. He reported that Aerocide is currently filling the new aerosol product line of G. H. Wood & Co., and the first aerosol product (Ice Away) of British American Oil Co., one of the leading petroleum retailers in Canada.

Among the "firsts" Mr. Legate cited:

1. Aerocide was the first company in the world to install and operate a rotary filler (an early Colton-Alpha model).
2. It was the first to install compressed gas and LP-gas facilities in Canada.
3. It was the first to package an aerosol starting fluid.
4. It was the first to package a food product other than a whipped topping (a chocolate syrup).

Pinned down for the answer to the age-old question—for custom fillers—whether or not it is wise to bring out private label products, both Mr. Legate and Mr. Mitchell quoted the strong company policy against such practices. Mr. Mitchell suggested that such practices worked *against* the marketers of brand-name aerosol products — many of whom might be customers of the very filler who is guilty of the practice. Mr. Legate summed it up this way: "It puts the filler in the unfortunate position of *competing* with his own customers, regardless of whether the respective products are sold in the same retail outlets."



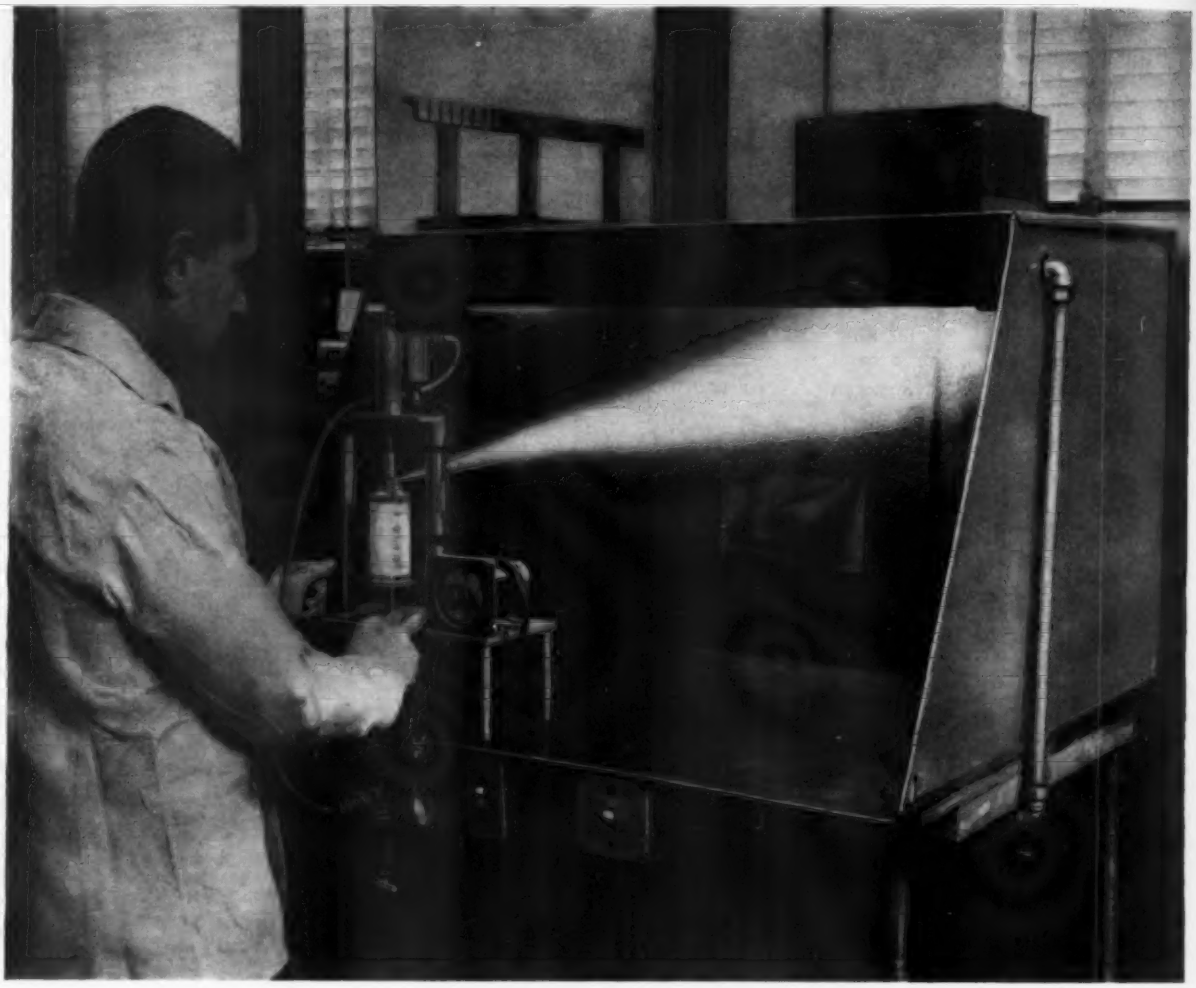
Propellant storage facilities include fluorinated hydrocarbon tank (top) and nitrogen and other compressed gas "torpedos" at bottom. LP gas installation is just being completed.

Talking with the top executive personnel of Aerocide, one gets the strong impression of optimism toward the company's future. Mr. Durant says the company is now ready to keep pace with the Canadian aerosol market no matter what direction it may take. He is very confident about the future prospects of the Canadian aerosol market, pointing to rising living standards, more leisure time, and a better educated public as indications of new aerosol customers and new markets for newly conceived products.

This optimism about aerosols has led Mr. Durant into his first business venture in the United States. He is board chairman and Mr. Mitchell is on the board of directors of the newly-formed Rochester Aerosol Corp., Rochester, Mich., which will begin custom filling operations the first of January (see story, page 95).

Although the two companies have no corporate links, Rochester is obviously counting on Aerocide's know-how to get started. In fact, Kenneth Mitchell has supervised design of the Rochester Aerosol plant, and it will incorporate many of the features of Aerocide's own plant. *Chemical Week* (Nov. 11) reports that "Mr. Durant's board chairmanship at Rochester has raised anew questions about whether he is building an 'empire' or seeking a way to slow down his active pace. He has so far zealously guarded ownership of Cardel Enterprises, the holding company through which he controls Aerocide and other interests..." Aerocide's investment in the new filling company is apparently based on a similar thought to that which led

(*Continued on Page* 129)



Sustained spray test with new valve design is conducted by Otto Weil, director of research

Aerosol Research Co.

automation and quality control
keep Chicago valve producer
in hot competitive position

IN this day when the term "growth" industry has been applied to so many kinds of businesses, comparatively little is known about an industry which has developed at a fantastic rate in recent years—the aerosol valve industry. Aerosol Research Co., Chicago, second largest manufacturer of aerosol valves and producer of a wide range of different types of valves, is an example of this expanding young industry.

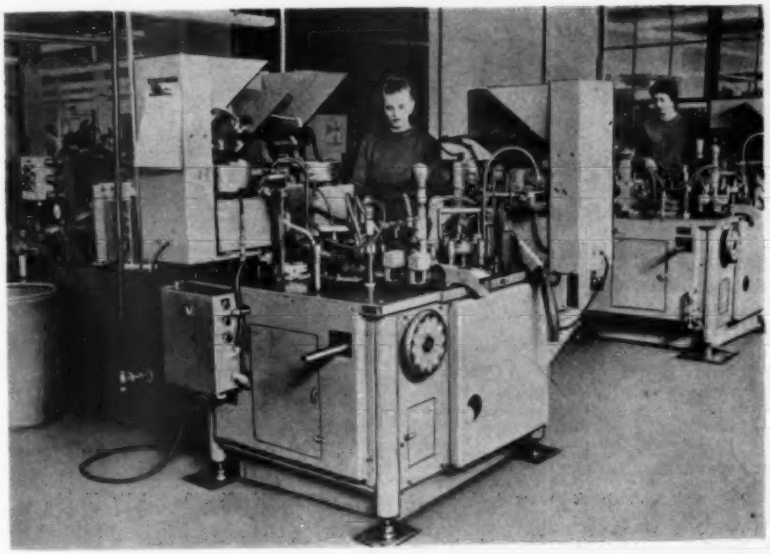
Supplying aerosol valves for use on such widely divergent products as paints, insecticides, and cosmetics, Aerosol Research claims to be one of the first in the field to have offered variations from standard specifications of valves. At the present time, the company even offers valves tailor-made for specific products, thus making possible the marketing of certain products with the aerosol dispensing principle which otherwise could not have been packaged.

Aerosol Research was founded in 1952 by Stanley J. Goldberg, current president. Originally a manufacturer of paint, Mr. Goldberg was founder and head of Mint Spray Corp. (which he started in 1949), and was also president of Dyna Spray Corp. Mint Spray was one of the pioneers in the marketing of paint in aerosol cans, selling the product under the trade name "Spraint". Dyna Spray was one of the first to offer a self-sealing lower valve assembly and a removable two-piece "No-Klog" sprav head, both of which were later made available to competitors to assure the future progress of the industry. Mr. Goldberg disposed of both of these companies in 1952 just prior to organizing Aerosol Research.

In addition to his paint industry activities, was also one of pioneers in dispensing whipped cream in aerosol containers. He is active in various philanthropic endeavors and is a director of one of Chicago's large hospitals. His major business interest is merchandising and sales.

A great believer in automation since the company's inception, Mr. Goldberg has installed more and more automated machinery for producing aerosol valves. The company has a continuing program of research aimed at improving products and increasing efficiency of production equipment. Engineering effort and money is constantly being expended to minimize or eliminate the human element of error in both manufacturing and testing of valves. The company's engineers have developed unique machines each of which automatically tests valves at the rate of 165 per minute. Automated production and testing has resulted in an extremely low rate of rejects at both manufacturing and user level.

AEROSOL Research currently manufactures six complete lines of valves: (1) Various types of "tilt-action" valves classified under the designation K-38. (2) The KN-38 "push-down" valve. (3) The AR-74 external metering valve. (4) The LA-10 valve with threaded mounting cup pedestal and a removable "No-Klog" spray head. (5) The AR-84, a glass bottle valve. (6) The AR-94 transfer valve for use in con-



Automated production and testing of "K-38 Tilt Action" valves is accomplished on these completely automatic machines. Hoppers feed valve parts and mounting cups to assembly devices.

Top: research laboratory, where new valves are developed and some customer formulation work is done. Bottom, part of Aerosol Research's quality control department, where valves are disassembled and microscopically examined for quality.

junction with "Mother and Daughter" packages.

The well-known K-38 line of aerosol valves includes three different spray tips which will dispense aerosol products in a variety of patterns, ranging from wide to extremely concentrated. There are also two vertical discharge types for room deodorants and weed killers, a tip with nylon insert for fine atomization of viscous products, and a "Mist-Mizer" with "jet spray" opening for extremely fine atomization. For the "push-down" KN-38 valve ARC produces seven spray tip-types—a foam actuator, a standard tip for general and surface sprays, one-piece and two-piece reverse taper tips, a "Mist-Mizer" tip, a fan-type or "flat" spray tip, and also a tip for residual sprays to be dispensed in a narrow pattern.

The external metering type of valve (AR-74) is available with four different spray tips, all with a patented metering groove. One of the actuators has a nylon insert which is said to produce a minimum amount of over-spray and is specifically designed for paints and lacquers. The second is a "Mist-Mizer" type. The third is called the "Jet-Head," the nylon nozzle of which gives a soft, even spray pattern with metered action and also is reported to be especially suited for paints and lacquers. The fourth has no insert and is intended for use with general space and surface sprays.

Aerosol Research is doing a sizable business overseas and at present has five manufacturing licenses in Mexico, Great Britain, France, Germany, and Italy. These are operations for whom the company established plants and sent over its own engineers and works managers to aid them in installing equipment and getting them into operation. The European manufacturing licensees have been for many years the major suppliers of lipstick cases and other metal fabricated, as well as injection molded parts for the cosmetic industry, on the Continent. Most of the licensees also utilize almost complete automation in the manufacture of their valves; an important factor because of the rarity of automation in Europe and other markets.

ARC, which currently claims to be the second largest manufacturer of aerosol valves in the world, ships valves to practically every major country with the exception of those in which it has licensees. In addition to the five countries in which licensees have already been established, arrangements are now in process to set up additional licensing agreements in Argentina, Brazil, India, Greece, and Scandinavia. Mr. Goldberg expects at least some of these new licensing arrangements to be completed during 1961.

The company occupies approximately 35,000 square feet on two floors at 743 Circle Avenue, Forest Park, Ill., a suburb of Chicago. Over 200 people are employed on a minimum of a two-shift basis, maintained since the company's inception. Rigid quality control inspection of components produced by other companies is a strict policy.

One of the newest operations installed is the company's own injection molding section using new high-speed injection molding machinery. This up-to-date equipment aids in maintaining careful adherence to specifications and insures a high quality of production. Typical of this is the company's K-38, which was the first tilt-action aerosol valve on the market, and is still claimed to be the fastest pressure-filling valve available.

Mr. Goldberg feels that the tremendous growth of the use of aerosol containers in the last few years is "but a beginning" in the great potential inherent in this versatile dispensing method.★

CSMA MEETS IN NEW YORK

Aerosol and Disinfectant Divisions Schedule Joint Session

TWO regulatory questions of prime interest to the aerosol marketer will highlight the 48th annual meeting of the Chemical Specialties Manufacturers Association at New York's Hotel Roosevelt Dec. 3-6. The Federal Hazardous Substances Labeling Law, the leading subject at the last three CSMA meetings, this year will be discussed as it relates to the aerosol marketer by Robert L. Ackerly, of the office of the CSMA counsel in Washington. The question of whether the use of flammable propellants in New York City will be banned by that city's Fire Department will be discussed and brought up to date by E. F. Helfer, chairman of a special CSMA Committee conducting negotiations with the Fire Dept. on the subject.

Annual highlight of the CSMA December meeting will be presentation of the Aerosol Package Awards, scheduled for a luncheon feature on Tuesday, Dec. 5. First reports indicate that this year's contest drew the largest number of entries in the history fo the contest.

In recognition of the growing importance of a relatively new aerosol product type, germicides and disinfectants, the Aerosol Division this year will hold a joint session with the association's Disinfectant and Sanitizers Division. Such problems as formulation, filling techniques, and market possibilities will highlight this joint session.

Charles E. Beach, CSMA president, will give his presidential address before the Wednesday, Dec. 6 luncheon session.★

Aerosol Sessions

Tuesday afternoon, Dec. 5 (Joint session-Aerosol and Disinfectant and Sanitizers Division)

Symposium on Germicidal Aerosols

1. *Current and Potential Markets for Germicidal Aerosols.* by Henry Holloway, General Chemical Division, Allied Chemical Corp., New York.
2. *Formulation of Germicidal Aerosols,* by Dr. John J. Sciarra, St. John's University, Jamaica, N. Y.
3. *Some Considerations in Formulation of Germicidal Pressurized Sprays,* by William Perlberg, Airkem, Inc., New York.
4. *Techniques and Problems of Filling Germicidal Aerosols,* by Montford A. Johnsen, Peterson Filling & Packaging Co., Danville, Ill.
5. *Testing Germicidal Aerosols,* by L. S. Stuart and L. F. Ortenzio, Pesticide Regulation Branch, U. S. Dept. of Agriculture, Washington, D. C.

Wednesday afternoon, Dec. 6.

Aerosol Propellant Blends: I. Dimethyl Ether-Fluorocarbon, by Robert J. Scott and R. R. Terrill, Union Carbide Chemicals Co., Tarrytown, N. Y.

Practical Aspects of the Free Piston Container, by Robert S. Schultz, Bradley-Sun Division, American Can Co., Union, N. J.

New York City Fire Dept. Regulations on Use of Flammable Gases as Propellants, by E. F. Helfer, Powr-Pak, Inc., Bridgeport, Conn. (Chairman of Aerosol Division Special Committee on N. Y. City Fire Dept. Regulations).

The Federal Hazardous Substances Labeling Act as Applied to Aerosols, by Robert L. Ackerly, Cummings & Sellers, Washington, D. C.

Charles Beach
CSMA President

Why and How... LEDERLE LABORATORIES INSTALLED ITS OWN AEROSOL FILLING LINE

*By L. Byron Kingery**
Assistant to Packaging Superintendent
Lederle Laboratories Division
American Cyanamid Co.
Pearl River, N. Y.

AT Lederle we have installed our own aerosol packaging production unit, a very small one, because we feel it is to our advantage both economically and for several other reasons. The main reasons for this particular operation are: (1) Our low inventory policy makes it desirable to be able to move—and produce—rapidly. This we can do with our short scheduling within our plant, as long as we have the equipment. (2) We have closer and more easily enforced in-process quality control. (We have no complaints with our contract packager's control, but believe ours is even better.) (3) The more work we do in the plant the better use we make of other available equipment and of supervisory personnel. (4) we now can produce at lower costs than we can have a contract packager do our work.

We have work done by a contract packager when we do not have and can not justify expensive, specialized equipment to do a particular job. General company policy is to do as much work as possible within the plant.

With the limited aerosol production at our Pearl River, N. Y. plant, the Lederle Laboratories story of how and why a small aerosol production line was finally installed may be helpful and of interest to others. We have had our unit, which cost less than $6,000, in operation since late 1960 and are very happy with the results.

Lederle first put an aerosol product on the market in early 1956. This was our "Rhulispray" with a cold fill propellant and at that time it was, and still is, packaged by Stalfort Pressure-Pak Corp. During the next few years we in production discussed the various benefits and problems that might develop if this product was to be packaged in our plant. Our biggest problems were how to justify a relatively large capital investment in equipment with limited production demands and how "expert" were we or could we become as aerosol production people.

By 1958, as sales volume held up well, we went as far as indicating in yearly future capital expenditure budgets the possible installation of our own aerosol production line. At this time we began discussions of equipment needs, availability, and costs with the various equipment manufacturers. Production problems were discussed with the propellant suppliers as were various problems with our contract filler, who was most cooperative in pointing out production pitfalls and problems.

In 1958, our only aerosol product was still "Rhulispray." The propellant loading is a cold fill for this product. With the need of compression and refrigeration equipment we developed figures that indicated a needed production of two to three million units a year to justify purchase of equipment. Volume was not this great and the project was temporarily put aside.

As new products were being developed and new equipment was becoming available, we started thinking seriously about pressure filling, which eliminates the need for costly compression and refrigeration equipment. Our volume of production still did not justify installation of an automatic line which could compete on a cost basis with our contract packing cost.

IN MID 1959 our "Vi-Tyke Syrup" was put on the market. The propellant for this product is nitrogen. First packaging was done by our contract filler and a number of problems arose. The main problems were manufacturing and transporting the bulk product to Baltimore. The product required special handling with special trucks, trucks broke down, excessive periods (time) of bulk storage was not desirable for high product quality, etc. To reduce these problems, and with small volume, Lederle production was asked what could be done to do the filling and packaging at the Pearl River plant with existing laboratory (pilot) equipment. This was the real start to installing an aerosol line.

During late 1959 and early 1960 the packaging production department

* Presented at the 23rd Annual National Packaging Forum of Packaging Institute, New York, on Oct. 19, 1961.

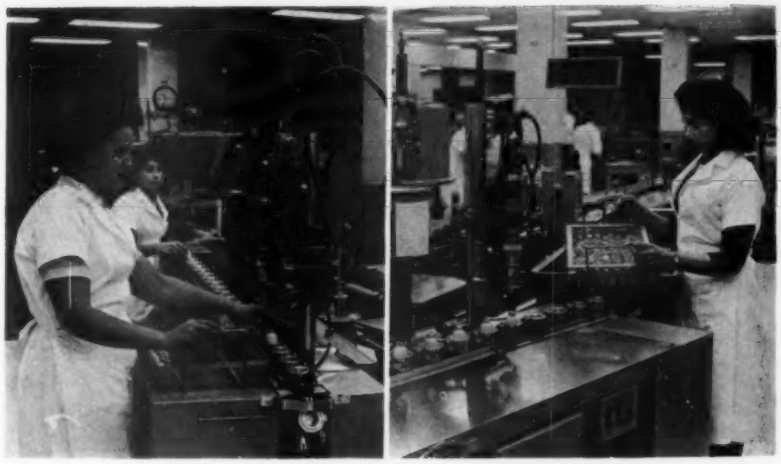
filled and loaded "Vi-Tyke Syrup" cans with equipment borrowed from our Development Laboratory. This equipment consisted of a standard manufactured crimper and "home made" propellant (nitrogen) loader. This equipment solved the problem of handling the bulk product but was slow and expensive labor wise.

In the spring of 1960 we started packaging our small glass aerosol containers of "Aristoderm Foam" and "Neo-Aristoderm Foam," both of which are pressure loaded with a fluorocarbon propellant. This crimping and loading was also done with our laboratory crimper and more "home-made" loading equipment. At this point, with our slow production rates, the Development Laboratory was continually asking for the return of their crimper so that they could proceed with their development work. This demand gave us in production the final push to obtain equipment, since either we had to get at least a crimper or have some of the new work done at a contract packager. Total quantities of aerosol packages produced and planned both at Lederle and by contract packagers were in the range of one million units per year. Figures for the years 1960 and 1961 are approximately:

Year	*Produced at Lederle*	*At Contract Packager*
1961—actual & planned	575,000	335,000
1960—actual	625,000	460,000

This includes 2, 3, 6, and 16 oz. cans and 7.5cc and 15cc glass containers.

At this point we again discussed the available low speed rated complete aerosol lines with several of the equipment manufacturers and still could not justify the expenditures. The answer appeared to be the purchase of a laboratory crimper and continued use of our home-made loading equipment. Before obtaining managment budget approval to purchase the crimper we made one more round of equipment searching and came up with what we are now using. This is a unit developed (with some of our suggestions) by J-G Machine Works that both automatically crimps glass containers and cans and loads both fluorocarbon and gas propellants with a tank water testing bath.



Principal equipment in Lederle line is J. G. Machine Works valve crimper and propellant gasser, with Elgin twin product filler. Filled, gassed bottles are taken in basket to water bath for leak testing.

Operating results, both speeds and labor productivity, have made us very happy with the unit. Like most other plants, we were not able to just plug the machine in and start up with no problems. Most of the equipment that the manufacturer had made had been for cans or larger bottles. It had also been mainly semi-automatic units (small production or laboratory use) or completely automatic aerosol lines. At our request a conveyor system was designed to be used with their table (semi-automatic) model. The conveyor had to handle 15cc bottles up through 16 oz. cans. After the purchase order had been placed, our even smaller 7.5cc bottle was added to the line. This increased the small size and small propellant charge problems. The table and conveyor were laid out to have space available for later additions (product filler, propellant tester, etc.) if and when they might be wanted. The conveyor was designed with lugs to carry cans and hold attached pucks for small bottles.

After a few delays in completing the changes and additions, we made our check out at the manufacturer's shop. (We try to check out all new packaging equipment at the manufacturer's plant before it is shipped. Over the years this has proven very successful and saved Lederle much expense and many problems when machines are received at Pearl River.) Everything went well except the control of very small propellant fills for our 7.5cc and 15cc bottles (between 1¼ grams and 3½ grams of propellant.) We and the manufacturer then spent several weeks working with various pumps, accumulating reservoirs, and loading (filling) heads. When it appeared that the problem was basically solved the machine was shipped.

The machine was immediately put into preproduction trials at Lederle. Two problems continued to exist — crimping of glass and greater variation of propellant fill than we desired. The latter problem was worked on by two very talented and persistent men on our staff, Jules Lagsdin and Ray Faivre. After much testing and trials, and with the cooperation of the machine manufacturer, Mr. Lagsdin redesigned the filling head and we now control propellant fills to plus or minus .05 grams (we set controls at ± .10 grams.)

In the case of crimping the glass the problem took longer to solve and centered in two areas: (1) the collet and (2) the glass. The mechanical part was solved by a slight redesign of the collet. The present collet has been used for over 300,000 crimps. The problem of the glass—7.5cc bot-

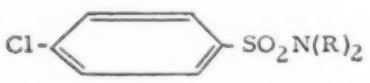
(*Continued on Page* 129)

Anti-Resistant DDT

a new development signals a resurgence of interest in DDT for aerosol formulations

A NEW additive which, when combined with DDT, exhibits unimpaired effectiveness against certain insect pests that have developed resistance to conventional DDT, has been undergoing extensive laboratory and field tests during the 1961 season. Called "Antiresistant DDT," it is reported to be highly effective against resistant house flies[1-2]. The new material (N, N-Di-*n*-butyl-*p*-chlorobenzenesulfonamide) was covered in a patent* issued to an Israeli research chemist, Moshe Neeman. The patent has been assigned to Wisconsin Alumni Research Foundation, Madison, Wis., which has named two licensees who will supply the material commercially, S. B. Penick & Co., 4161 Beck Ave., St. Louis, and General Chemical Division of Allied Chemical Corp., Morristown, N. J. Samples of the material may be obtained from the licensees by aerosol formulators and fillers.

The compound developed by Dr. Neeman has the following formula:



in which R is an n-alkyl radical having from 2 to 7 carbon atoms[3]. Although other analogs were also found to be active, the butyl analog was selected for use in field trials. The chemical is believed to act as an inhibitor of the enzyme DDT dehydrochlorinase[4].

The term "Antiresistant" was coined by Wisconsin Alumni Research Foundation in an attempt to describe as closely as possible the function of the material. It was concluded that it should not be described as a synergist for it does not seem to materially enhance the performance of DDT against DDT-susceptible or DDT-tolerant insects. WARF chose the "Antiresistant" term since the chemical, while noninsecticidal in itself does give acceptable kills of certain species of DDT-resistant insects in combination with DDT.

One formulation — a 10/50 wettable powder (10% Antiresistant and 50% DDT) — has been registered

(*Continued on Page* 119)

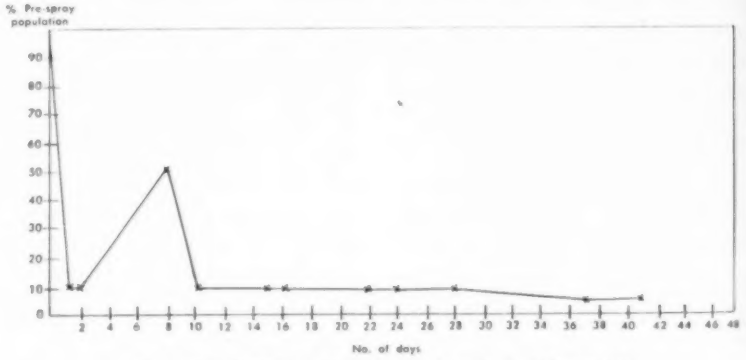


Fig. 1. Housefly control in cattle barn at Farm T., Dane County, Wis.

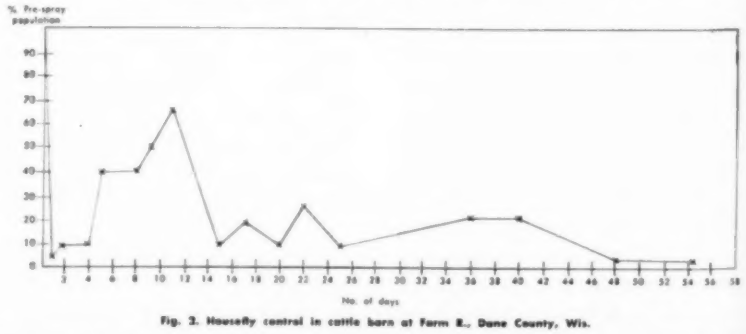


Fig. 2. Housefly control in cattle barn at Farm R., Dane County, Wis.

Figures 1 and 2 illustrate the immediate and sharp decline in fly populations after application of Antiresistant DDT. Fly breeding sites were plentiful in both premises, and the high rate of emergence from these sites apparently accounts for the subsequent temporary rise in populations. Counts tapered off thereafter and remained at low levels until the tests were terminated. The temporary rise in populations shown at 8 to 10 days was not observed where good sanitation was practiced.

* U.S. Patent No. 2,974,803. Dr. Neeman, formerly a fellow at the Chemistry Department, University of Wisconsin, is presently on the research staff of Roswell Park Memorial Institute, Buffalo, N. Y.

Is your product dressed for sales?

As you know, in today's market, your product must be smartly dressed and up-to-the-minute, for maximum sales appeal at the point-of-purchase.

Peerasol* is the distinctive, seamless, aluminum aerosol container that is being chosen by drug, cosmetic, pharmaceutical and specialty product manufacturers to meet a growing consumer demand for smaller pocket and purse size aerosols. It is the only aluminum aerosol container with a patented neck for a leak proof valve-cup fit. This feature, combined with the extruded one-piece construction, makes a container you can market with confidence. Peerasol containers can be handsomely lithographed in two, three, or four colors over a base coat, and come in capacities ranging from one-half to four ounces.

Peerasol is another development of the Peerless Tube Company, a pioneer in the manufacture of collapsible metal tubes as a package for commercial use.

For complete information about Peerasol containers, write or call—

PEERLESS TUBE COMPANY, Bloomfield, N. J.

** Peerasol is a tradename of the Peerless Tube Company.*

← Metered Valves...

for dispensing products propelled by immiscible gases

By Philip Meshberg
President
Emson Research, Inc.
Bridgeport, Conn.

THE "ultimate" in push-button dispensing is the automatic delivery of a pre-determined amount of product. The advantages of metering are as important to the consumer (the ultimate user of the product) as they are to the manufacturer or marketer of the product. For with the "controlled" package, the consumer *cannot* misuse the product and thereby has a far better chance of obtaining maximum value for the price he paid for the package. At the same time, the manufacturer has the assurance that the package will dispense properly and consequently is likely to have the most favorable consumer acceptance (with consequent repeat sale).

Emson Research has just completed work on a new valve (called the "IG") which will bring the metered principle into use with aerosols propelled by immiscible gases. It seems unnecessary to point out that the use of such gases in a controlled package opens up the aerosol field to many new products which hitherto have not been pressure packaged because of problems of toxicity, formulation, flammability, or the high cost of conventional fluorinated hydrocarbons. This applies especially to pharmaceuticals—for both humans and animals—and to food, personal, and household products.

The difference between the "IG" metered valve (U.S. patent No. 3,003,662) and the previous Emson metered valves, (U. S. patent Nos. 2,721,010, 2,968,427, 2,837,249 and 2,974,453), are as follows:

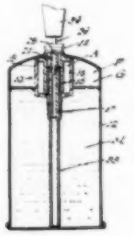
The regular metering valve which is used with liquefied-petroleum-propelled products provides means for trapping a pre-determined amount of material within the valve so that *only that amount* of material is self-propelled out of the valve when the actuator button is depressed. In other words, this valve does not propel the product. The immiscible gas (which is *not* in solution with the product itself) merely pushes the product into the valve and it is the valve alone which must propel the product that has been trapped within its tank, pushing it out through the actuator when it is depressed. In addition to the immiscible or compressed gases (such as nitrous oxide, carbon dioxide, and nitrogen) liquid propellants could also be used in a three-phase system where a metered dose or a control is desirable.

All products which do not require dispensing in a metering dose *are* exposed to the hazard of accidental discharge of the gas before all the product has been dispensed from the container. The marketer of such products can minimize this "exposure" by utilizing the metering valve merely *as a control*. This is accomplished by using a valve ample in size to permit the dispensing of the product at will—without the loss of gas before the complete evacuation of the product.

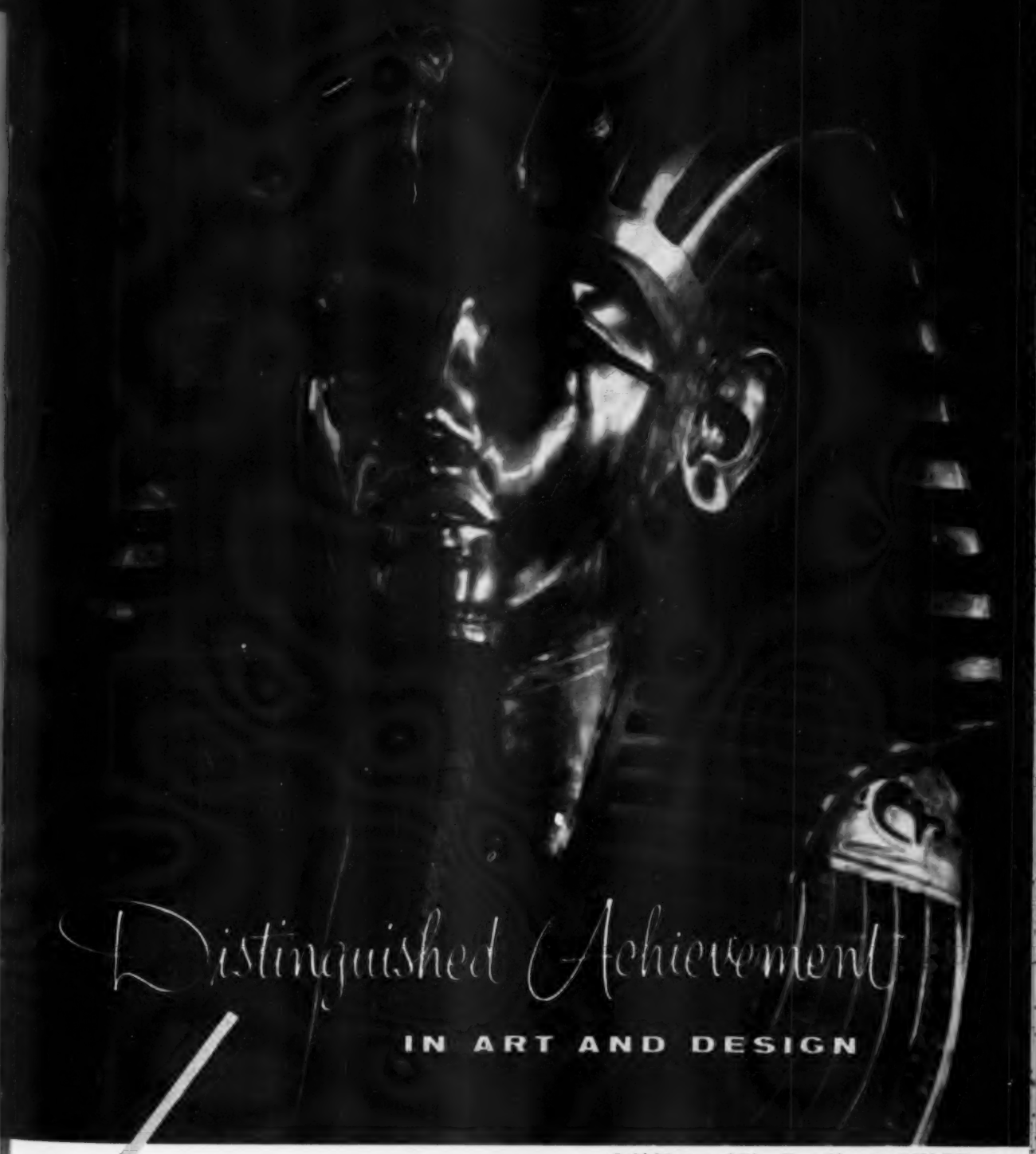
With the increased use of immiscible gases now possible with the use of this valve, its cost becomes a

(*Continued on Page* 113)

3,003,662. DEVICE AND METHOD FOR DISPENSING MATERIAL UNDER PRESSURE OF AN IMMISCIBLE GAS. Issued Oct. 10 to Philip Meshberg, 290 Euclid Ave., Fairfield, Conn.



A method for dispensing a predetermined measured quantity of material from a container under pressure of an immiscible gas comprising providing a measuring chamber of predetermined capacity having inlet and outlet means and means for forming an air pocket, said air pocket means including an auxiliary chamber adapted to supplement said measuring chamber and being openly communicated therewith at the opposite side of said chamber from said outlet means, trapping air at atmospheric pressure in the measuring chamber and auxiliary chamber, forcing material from the container by the pressure of the immiscible gas therein through said inlet means into the measuring chamber and auxiliary chamber to compress the air into the latter so that the pressure in the chambers and the container are substantially equal, closing the inlet means so that a predetermined quantity of material is trapped in the chambers and thereafter opening the outlet means for communicating the chambers with the atmosphere so that the trapped air is enabled to expand from the auxiliary chamber and drive the material therefrom and from the measuring chamber.



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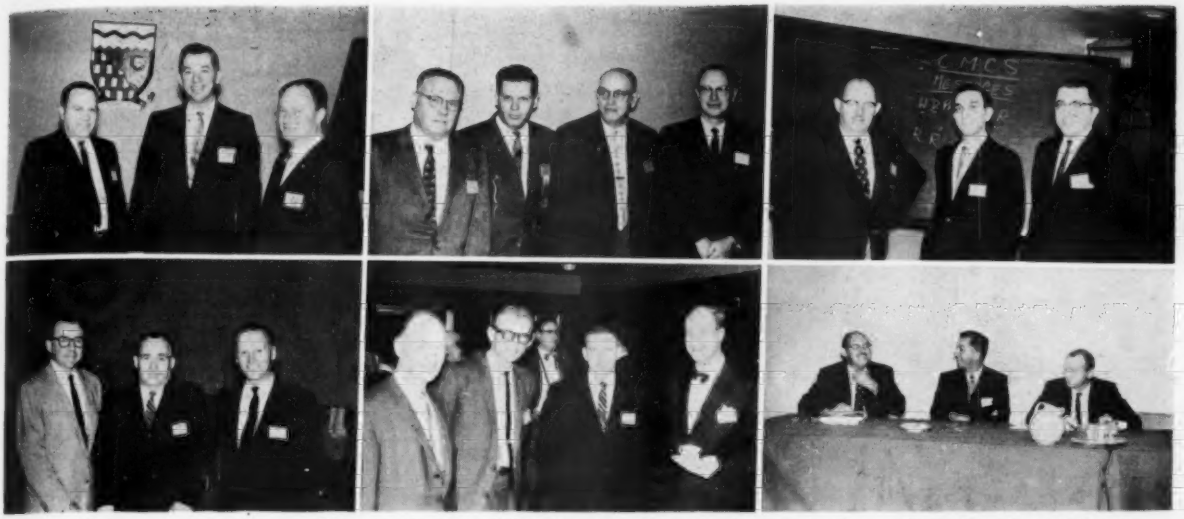

Top row: Ed Green and Joe Gregory (Newman-Green) and John Struthers (John Struthers Co.); George Hartz (Prentiss), J. H. Morrow and W. H. Morrow (Canada Rex Spray) and Bob Muirhead (MGK); Ralph Legate (Aerocide Dispensers), Ralph Minervino (Metal Fabrications), and George Macura (VCA). Bottom row: Gene Wilkin and Peter Powell (Yardley of London), and John Thompson (D&O), G. O. Roe (DuPont of Canada), Kel Doyle (Crown of Canada), Seth Schneible (Crown Cork), and M. Languedoc (Conn. Chem. of Canada). Ralph Legate, Joe Gregory, and John Hinn (Air Reduction).

Four Aerosol Technical Papers Highlight CMCS Meeting

OVER 200 delebates from all parts of Canada, including a sizeable delegation of U.S. suppliers, gathered in Toronto's Royal York Hotel, Oct. 30-Nov. 1 for the fourth annual meeting and conference of the Canadian manufacturing of Colgate-Palmolive ties Association. For the aerosol attendees, highlights of the meeting were a four-paper technical program and announcement of the winners in the first annual Aerosol Package Contest of the CMCS.

A. Robins, president of Cartier Chemical Co. Ltd., Montreal, was elected president and association spokesman for the coming year. He succeeds R. L. Jones, vice-president, manufacturing, of Colgate-Palmolive Ltd., who joins the association's board of directors as past-president. Other officers elected for 1962 were:

Vice-Presidents: D. A. S. Lee, general sales manager, DuPont of Canada Ltd, Montreal, Que.; E. L. Clifton, general manager, R. M. Hollingshead Co. of Canada Ltd., Bowmanville, Ont.

Secretary: J. D. Caldwell, assistant to the president, Diversey Corp. (Canada) Ltd., Clarkson, Ont.

Treasurer: D. B. Ross, general manager, Aerosol Packaging of Canada Ltd., Scarborough, Ont.

The conference theme "Canada and the Industry Developing Together" was designed to point up the need for cooperative effort between government and secondary manufacturing industry to advance the economy of Canada. This theme was pursued in a whole series of program events, many of which had government speakers as the prime attraction.

One indication of this cooperative effort between government and industry is the current effort to arrive at minimum fill determination for aerosol products, a project being studied by a special CMCS aerosol committee (headed by Kenneth Mitchell, of Aerocide Dispensers, Ltd.) and including consultations with representatives of the Division of Weights and Measures of the Standards Branch of the Canadian Dept. of Commerce. C. S. Phillips, chief of the division, told the CMCS Aerosol Division that the factory level is the only place such a minimum fill determination can be made. He suggested one approach might be the setting of a minimum active ingredient percentage, and possibly stating it in comparison with a similar percentage, in a nonaerosol package. He hinted that more specific determinations, without reference to non-aerosol quantities, might confuse the consumer.

THE formal Aerosol Division consisted of a paper on "Aerosol Valves — Past, Present, and Future," by Joseph Gregory, sales manager, Newman-Green, Inc., Addison, Ill. (for complete paper, see page 76): "Aerosol Containers — Past, Present and Future," by Seth Schneible, sales manager for aerosol products, Crown Cork & Seal Co., Philadelphia; "Nitrous Oxide as a Propellant in Non-

YOU put it there, of course. Though the young lady dressing for her big date may not know it, the perfume she's using — like many other cosmetics on her dressing table — very likely contains ethyl alcohol bearing the U.S.I. label.

YOU put it there because your reputation is at stake every time she presses the dispensing button or opens a jar of your product. You know your product is only as good as the raw materials that go into it. So for assured quality in exacting cosmetic and toiletries formulations, you specify alcohol of assured quality — U.S.I. specially denatured or pure ethyl alcohol. It's the brand hospitals have specified and used with complete confidence for over half a century.

YOU put that ethyl alcohol drum there because U.S.I.'s reputation safeguards your own.

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Food Aerosol Products," by John Hinn, assistant director of customer service laboratory, Air Reduction Sales Co., Madison, Wis.; and "Marketing Surveys for the Aerosol Industry," by Richard L. Edsall president, Edsall Research Ltd., Montreal.

The only Canadian executive on the formal aerosol program, Mr. Edsall supervised what were probably the only consumer aerosol studies ever done of the Canadian market. The studies, initiated by DuPont of Canada, Ltd., were aimed at determining consumer knowledge of, and receptivity toward, a wide range of aerosol products. Results of both studies were published in the September issue of *Canadian Packaging*.

Mr. Edsall urged that aerosol marketers better appreciate the value of the telephone survey in obtaining excellent consumer survey results. He said that previous prejudices against telephone interviewing are no longer valid because of the vast increase in homes owning a telephone. Homes in urban areas of Canada, he reported, currently number upwards of 79% with phones, and the rural percentage, although considerably less, is increasing at a rapid rate.

As disadvantages of using exclusively phone interviews, Mr. Edsall suggested these:

1. The criticism that the percentage of homes without phones represents the lower-income families, which would unbalance the survey in favor of the high-income family units. He discounted this criticism by pointing out that middle and higher income groups more often are not at home and more often refuse to be interviewed.

2. The length of the interview is restricted.

3. Nothing "visual" can be

(*Continued on Page* 115)

Avon Product Wins Top Canadian Award

Winning package uses VCA valve and Sterling Seal overcap.

AVON PRODUCTS of Canada, Ltd., with its superb "Mint Klean" air freshener package, won the Grand Award in the first Canadian Aerosol Package Contest last month. Results of the contest were announced in conjunction with the opening of the fourth annual convention of the Canadian Manufacturers of Chemical Specialties Association, sponsor of the contest.

The contest drew a total of 142 aerosol entries, most of them in the household products category. Judges were Alan Jarvis, editor of *Canadian Art*, Elaine Collett, director of the Chatelaine Institute, and John Nickell, editor of *Canadian Packaging*. In an address to the CMCS meeting, Mr. Jarvis said the entries ranged from "very good to simply appalling." He urged that Canadian subsidiaries of U.S. companies do their own design work to give their products a distinctively Canadian look. "The size of a country or its population density should be no drawback to design excellence."

In announcing the winners, Mr. Jarvis explained that in five product categories the judges ruled that there was no product of sufficient distinction to warrant a "winner" designation. In these categories, "honorable mention" was the highest award.

Automotives

Winner—G. H. Wood & Co., Ltd.
Product—Wood's Ice Off
Honorary Mention — Corrosion Service Ltd.
Product—Rust-Gard

Insecticides, Repellents & Moth Proofers

Honorary Mention—Green Cross Products Ltd.
Product—Livestock Bomb
Frank T. Ross & Sons, Ltd.
Product—Nok-Out

Room Deodorants

Winner—Avon Products of Canada, Ltd.
Product—Mint Klean Air
Honorary Mention—O-Cedar of Canada Ltd.
Product—O-Cedar Air Care
Frank T. Ross & Sons, Ltd.
Product—Air Fresh

Hair Preparations

Honorary Mention — Avon Products of Canada, Ltd.
Product—Sheer Touch Hair Spray

(*See Next Page*)

Left: new CMCS president A. Robins delivers presidential address. Right: Alan Jarvis, chief judge in the Aerosol Package Contest, gives award to Avon representative.

Helene Curtis Ltd.
Product — Spray Net Supra Deluxe Regular

Paints, Enamels, other Protective Coating & Paint Removers
Honorary Mention—Canadian Industries Ltd.
Product—Cilux Spray
Frank T. Ross & Sons, Ltd.
Product—Metaltone

Other Household Products
Winner—O-Cedar of Canada, Ltd.
Product—O-Cedar Bowl Bath
Honorary Mention—O-Cedar of Canada, Ltd.
Product—O-Cedar Instant Torch
Packer Exports Inc.
Product—Shoe Polishes

Medicinal & Pharmaceutical Products
Honorary Mention—Nordic Biochemicals Ltd.
Product—Trypure Novo Spray

Perfumes, Colognes & Toilet Waters
Winner—Helene Curtis Ltd.
Product — Tweed Mist Toilet Water Spray (Lentheric)
Honorary Mention—Rexall Drug Co. Ltd.
Product—Shari (Cara Nome)

Shave Products
Winner—Yardley of London (Canada) Ltd.
Product—Yardley Shaving Foam
Honorary Mention—Helene Curtis Ltd.
Product—Pink Plush
Rexall Drug Co. Ltd.
Product—Stag

Pace Expands Plant

Ira A. Wolfson, President of Pace, Inc. announced the acquisition of a building adjoining the company's Wilmington, Del. aerosol packaging plant, which will add another 3,000 square ft. to their present facilities. This expansion marks the third such advance for this firm in the past two years, and will permit the expanded installation of filling lines and warehouse space for their private label and contract packaging work. New telephone requirements have necessitated a number change to East 8-5616.

THE SAMPLE SHELF

By Jerome N. Michell
vice president
The Walter Frank Organization
Hillside, Ill.

A Matter of "Look-Alike"

WHICH can is an aerosol? Pictured this month are three products which clearly present the image of an aerosol to any consumer, and yet one of them is *not* an aerosol product.

Whether Simoniz is inadvertently trading on the aerosol image with a non-aerosol product involves a packaging decision that only concerns Simoniz, and one which their own sales figures will answer for them. Certainly no-one can quarrel with the package. "Vista" clearly states what it is, is of excellent design, and presents a good size impression. The aerosol-type overcap happens to be a measuring cup.

The point is that there are dozens of aerosol products on the market today—some of them well known national brands which do not identify themselves as aerosols and thereby

(1) run the risk of losing the selling advantage that the word "aerosol" affords.
(2) do a disservice to a thriving industry that has built up the convenience of aerosol dispensing over many years, and with much effort and money.

The vast majority of consumers are completely alert to the convenience and ease of the "push button" package today. Containers that *look like* aerosols are undoubtedly purchased frequently in the belief that they *are* aerosols. There is certain to be a feeling of disappointment and even one of having been "sold" something on the part of many buyers when this discovery is made.

There is also certain to be some confusion in the minds of these users in their subsequenty shopping as they ask "Is it or isn't it an aerosol?"

Aerosols cost more than conventionally packaged products. The consumer has been educated to this fact, and also to expect the dispensing ease of a pressure packed item.

Tell her so! Leave no doubt in her mind that she is getting what she is paying for. Whether the container says "Aerosol," or "Aerosol Spray," or "Spray," or "Mist," or "Spray Mist," or "Push Button" is not of great moment. But *where* and *how* it says it is important. It should not be buried in fine print or directional copy.

It is a definite selling point of the package and should say so *prominently* on the front label where it cannot be missed.

Only in this way can the aerosol package justify its "more expensive" and deservedly more expensive position against packaging that leaves doubt as to what it is.★

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Aerosols in Berlin

a pictorial report on the German Soap Fair

By Tom C. Clark
Druk-Pak Ltd.
(Aerosol Age European Correspondent)

ALTHOUGH the new wall dividing Berlin has created a tragic and decidedly un-natural atmosphere, daily life in the free part of the city moves along with the same vitality as before the fateful August 13 when the wall began going up. The economic and cultural life of the city is still brisk and visitors from all over Western Europe continue to visit the beleaguered city.

Undeterred by the "Stone Curtain", the German Soap Fair held its 67th exhibition in West Berlin from Sept. 16 to 19. A majority of the 130 exhibits were from West Germany, but a number came from Berlin itself. There were also a variety of French, American, English, and Swedish companies exhibiting, nearly all from among the prominent soap companies in those countries.

Despite some interesting old-line brand names, and a good many famous specialties from old established European houses, many such firms put their aerosol packages in featured position in their exhibits. All this supported the current industry belief here that Germany ranks second behind Britain as the leading aerosol country in Europe. German aerosol production for 1960 probably finished close to the 40-million unit mark, an increase of 50% over the previous year. While this figure was only about one-seventh of the per capita U.S. market, a similar expansion in 1961 very likely will bring German production to the very respectable figure of 60 ot 65 million units.

Leading the list of German products is hair fixatives, which are estimated to account for some 40% of all German aerosol production. This estimate was borne out by the displays at the Berlin show, which heavily emphasized hair fixatives—with sun tan preparations, deodorants, and foot sprays also giving good accounts of themselves.

Although shave creams rate fourth among U.S. aerosols, such products

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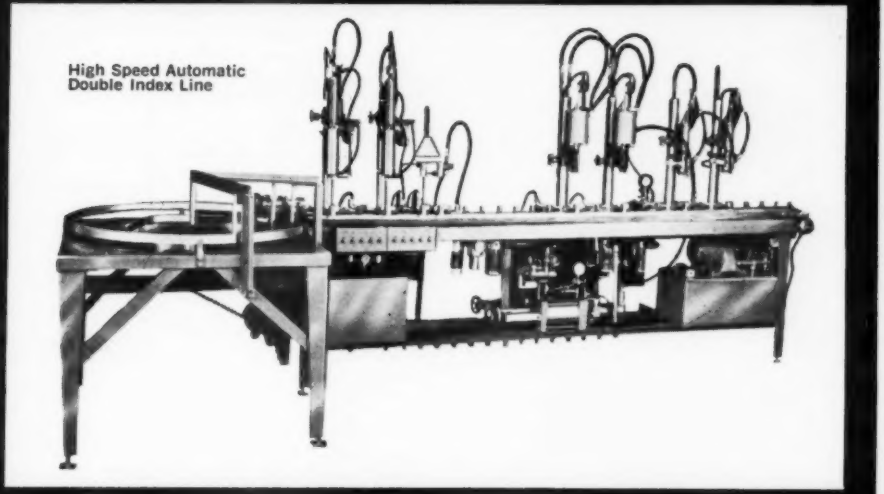

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I understand there is no obligation for any technical advice, detailed information or consultation given me.

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Lavender Bouquet	DH-150

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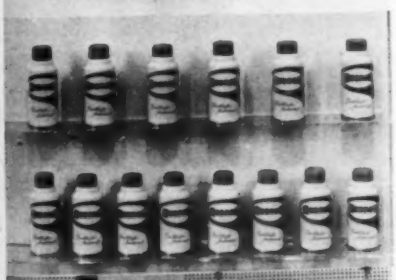

in Germany are largely unknown. Now, however, it looks as though shave creams at last will have a fair opportunity—for within the past few weeks a leading producer of this type of product launched an extensive advertising campaign for a new aerosol shave foam.

AIR fresheners also rank high in the German market, and are finding use not only in the home, but also in cars and buses used to carry passengers. Insecticides are finding more specialized uses too. Recently a leading manufacturer of such products introduced a moth killer for clothing and a house plant spray. While this approach is "old hat" among U.S. marketers, it *is* something new for Germany.

The Berlin Soap Fair is traditionally a showcase for "firsts", and it was therefore not surprising to find a whole lot of new aerosol "firsts". A leading German cosmetic house presented two of its leading hair creams—heretofore packaged only in tubes — in pressurized packages. In the air freshener category, the addition of new odors and bactericidal agents can be expected to provide a new spur to consumer appeal. The first aerosol-packaged starch for the German market was unveiled. And finally, "mother-daughter" refillable hair spray packages were in abundance, having apparently "caught on" nicely.

The photographs appearing with this story give a fair indication of the importance given to aerosols at the Fair. Though obviously intended primarily for trade people, many of the general public attended — and since the West Berlin consumer market exceeds 2.3 million, the "aerosol message" probably went a good distance.

Perhaps the leading attraction at the fair was a special cinema show on aerosols aimed at the consumer. Since the Fair extended over a weekend, two full days were available for public visits; and despite the appeal of the product stands, crowds stood

(*Continued on Page* 124)

Aerosol products were more in evidence at the 1961 Soap Fair than at any other time in history. Visual photographs of application (top photograph, left of page) and product racks were everywhere. Although most were in the cosmetic category, (hair sprays, in particular) fresheners and other specialty products were also common.

More photographs of the International Aerosol Congress...

Because of the importance of the 3rd International Aerosol Congress (held in Lucerne, Switzerland, Oct. 3-8) the editors of *Aerosol Age* herewith publish some new photographs of the exhibit booths and attendees at the congress. As will be seen, considerable time and effort was devoted to the aerosol booths for the first show of its kind ever held in Europe. (*Photographs: Aerosol Age, Chemical Week, and H. R. Shepherd.*)

Stafford-Allen, British supplier of insecticides, perfumes, and other specialties, concentrated its efforts on formulations and new uses for the aerosol.

Schmalbach, German can producer, showed a wide variety of containers and can decorations.

At the Johann Waldherr booth, Tom C. Clark of Druk-Pak, an affiliated company, shows operation of new gasser.

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Aerosol Congress (continued)

Cheese demonstration is given C. Lindemann, director of Precision Valve, licensee in Holland, and Raymond Shah, *Chemical Week* representative in Zurich.

Aerosol-packed cheese was featured in the exhibit of Precision Valve International at the October Aerosol Congress in Lucerne, Switzerland. The cheese spread for pressure packaging was developed by International Flavors and Fragrances in collaboration with the National Institute of Dairy Research, of Holland (N.I.Z.O.). Dr. Witjens of the IFF office in Zaandam, Holland, was largely responsible for the flavoring phase of the work. The product was packed by Orga Chemia in Holland, using a Precision valve and a Boxal aluminum container. G. Lindeman of Limex Trading, Precision licensee in the Netherlands, assisted in working out the valve and formulation problems.

Left: unidentified aerosol executive (far left) listens to A. Wettler, Pluss-Staufer, as Alfred W. Naegeli, secretary manager of FEA, listens. Above, two U. S. representatives at meeting were Tom Johnson of Du Pont and Wayne Dorland of *Aerosol Age*.

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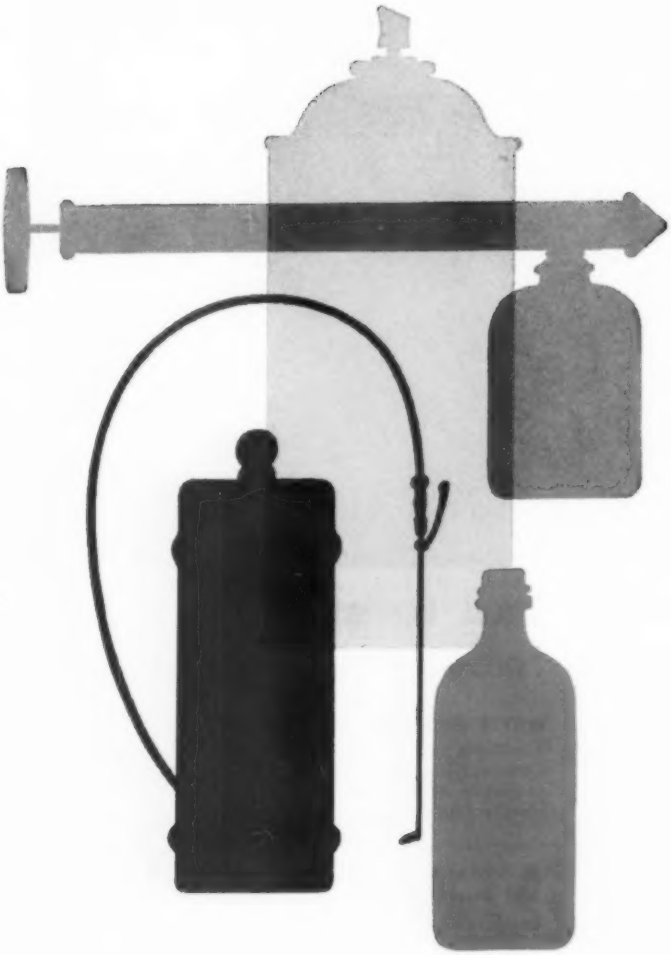

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Available as Diazinon 20S, an oil solution containing 1.5 lbs. Diazinon per gallon. Used in formulation of 0.5% Diazinon liquid household and pressurized sprays. Packaged in 5 gallon and 30 gallon drums.

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An aerosol de-icer photograph is rehearsed by Jack Davis (left) and Bob MacDonald, of Norman Odell Associates, with model to show her proper application technique. Photograph will be used for newspaper-magazine mats such as those on next page.

Aerosol Publicity

the CSMA Aerosol Division Program to publicize the use of aerosols swings into high gear . . .

FROM small town newspapers to top national consumer magazines, from specialized trade publications to leading business news periodicals, a steady flow of publicity expounding the merits and advantages of aerosols has been repeatedly informing and reminding U.S. consumers about the built-in convenience of push-button packaging. This publicity does not just *happen*. It is planned, created, and placed as part of the industry's continuing, hard-hitting market development and publicity program, now in its fifth year.

During that time literally hundreds of feature stories, featurettes, news fillers, syndicated editorials, photo-captions, and news releases have been beamed to all segments of the nation's press and have captured editorial space which, by any standard, represents impressive coverage and high readership.

This record of accomplishment and this publicity momentum have been built up through the joint efforts of a special Steering Committee, comprising industry representatives from among the more than 37 CSMA* Aerosol Division member companies who are supporting the program, and their public relations agency, Norman Odell Associates, Inc., New York.

Meetings of the Aerosol Market Development and Publicity Committee and the agency staff are held every six weeks or so in New York City. At these meetings the Committee receives a full report of published results, materials in preparation, activities initiated, and considers projects for future action. All publicity and communications aimed at the press in the name of the CSMA Aerosol Division are in the interests of "aerosols" generically. Mentions or identification of private aerosol brands or labels are avoided, leaving such proprietary brand promotion to the individual product marketers.

Objectives

Since its inception, the Aerosol Division's market development and publicity program has hewed to these objectives:

> . . . To publicize to consumers and the trade the convenience and economy of aerosols, and their

* Chemical Specialties Manufacturers Assn.

topicals

whipped toppings

pet products

starches

gun oil

Newspaper mats, made of these photographs and captions pointing out the advantages of aerosol use, are being published in newspapers all over the country. Each one concentrates on different new product type. Such pictures have already appeared in thousands of weekly and daily papers.

place in modern household management.

- ...To establish a central source for information on matters of publicity and industry promotion.
- ...To provide information at the consumer and dealer level regarding the many different types of aerosol products available.
- ...To promote both year around and seasonal aerosol product types in all potential markets.
- ...To carry out an effective public relations program that will present the aerosol industry to the public in the best light.

Since its inception, an important underlying motivation of this unique aerosol publicity program has been to help sustain consumer interest in and demand for aerosol packaging products, in general, as opposed to conventionally packaged items — a promotional need that is not usually filled by the private label marketers in their print, radio, and television advertising.

As a result, it has been possible to place a number of excellent stories in prestige publications that will give major editorial space to a feature on aerosols generically (providing, of course, it is timely, newsworthy and well prepared) when they are likely to shy away from features and news on one particular aerosol brand or product line in similar fashion.

If they are to get into print, the story ideas, background material, feature outlines, photo illustrations and other material must be fresh and of real reader interest. Since the publicity for aerosol packaging thrives on "what's new," a constant effort has been made to keep up with, or even a bit ahead of, the latest aerosol product type developments. In this way effort can be concentrated where it will produce maximum sales-building appeal for the benefit of the entire industry.

Reports to Sponsors

It has been regular practice to keep Aerosol Division member companies informed of important publicity events as they occur by means of bulletins and reprints distributed from CSMA headquarters. Also, reports were made on program results and plans with slide presentations at most of the CSMA conventions over the past four years.

In July of 1961, the method of financing the Market Development and Publicity program was modified. Response to the fund solicitation was excellent and a somewhat larger budget was made available in sup-

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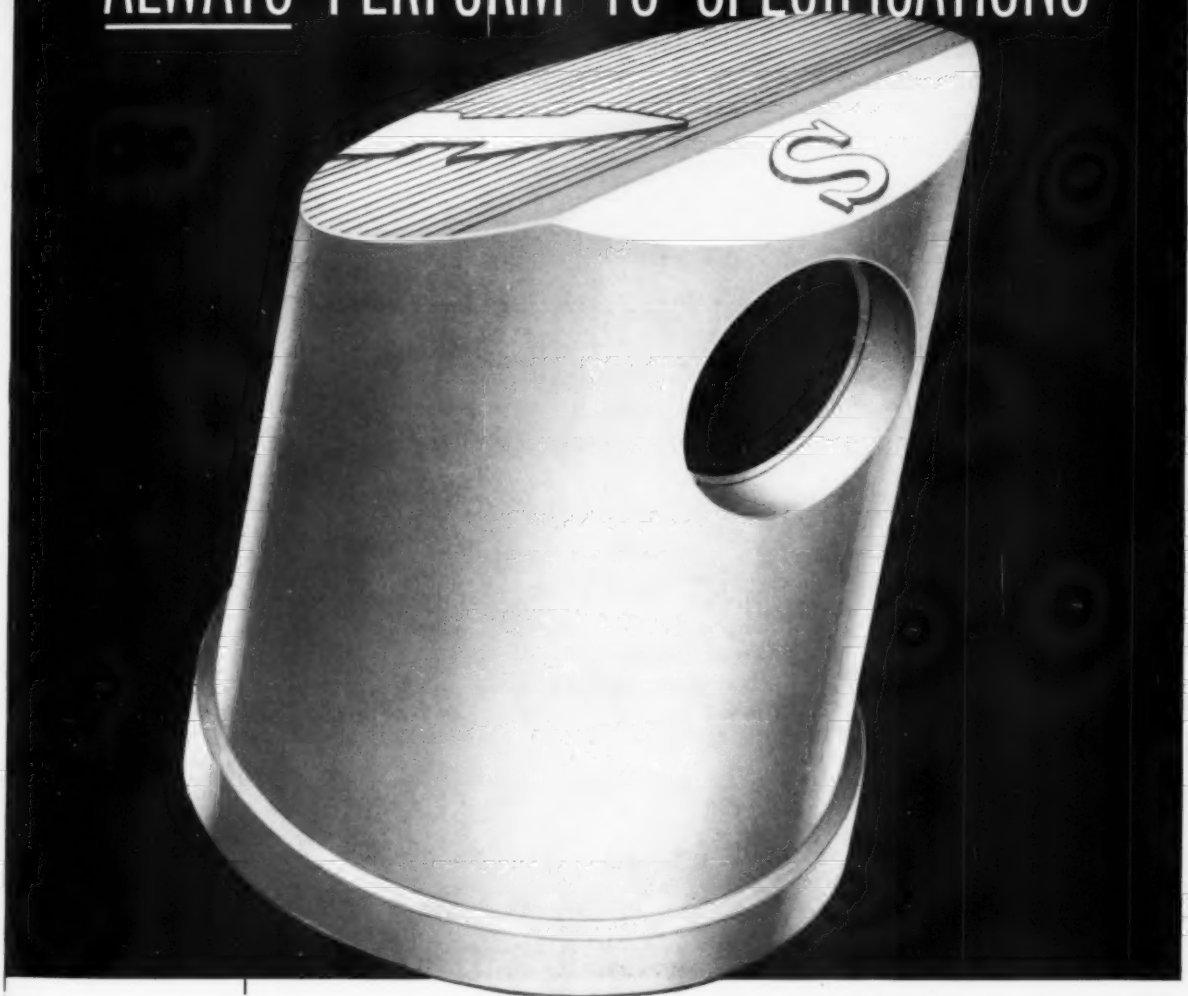

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Visit the Schrader suite during the C.S.M.A., December 4-6, Roosevelt Hotel, New York

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Watkins Products, Inc.
Wheaton Plasti-Cote Corp.

port of the program. As a result, more manpower has been assigned and the publicity effort has intensified.

Variety and Scope

The individual projects carried out for the industry by the Committee over the past few years are too numerous to be covered in a short article. However, the following brief listing of results and projects during the past ten months gives an indication of the variety, scope and impact of the program:

Wall Street Journal—A front page feature on aerosol foods in the March 28 edition was based on meetings between the agency and the editor, who was provided with background information and who supplemented this with material gathered from industry sources to which he was referred.

Aerosol Production — An interim report on estimated production of aerosols in 1960 was prepared and sent to a selected list of newspapers, business and trade publications in January. It appeared in *The New York Times, New York Journal of Commerce, Chicago News, Sales Management Magazine, Supermarket News, Printer's Ink*, and other leading media.

Chicago Sun-Times Syndicate—A feature column on aerosol permanent wave, under Mary Sue Miller's byline, was syndicated to more than 150 metropolitan newspapers across the country, and was published in many of them.

Trade Publications — Joint effort by the Committee-agency team, and CSMA's own publicity committee, produced wide pickup of the story on the winners in the 1960 Aerosol Package Design Awards competition. Typical of story and photo placements are *Chemical Week, Modern Packaging, Paint & Varnish Production, Food & Drug Packaging, Drug Trade News, Glass Packer, Food Field Reporter, American Perfumer* and, of course, *Soap & Chemical Specialties* and *Aerosol Age*. In connection with the annual Package Design Awards competition, the Aerosol Market Development and Publicity Committee selected seven qualified judges and handled all arrangements for the judging held each year in November at the Chemists' Club in New York City.

House and Garden Magazine—Consecutive issues of this top home service magazine, with circulation near 1,000,000, gave major play to aerosol packaging. In May the "Newsletter" pages featured a variety of newer aerosol product types. In June aerosols for decoration were spotlighted in a four-page illustrated feature on a garden party inspired by the Broadway show "Camelot."

Grit — In February this national consumer weekly with 880,000 circulation ran a three-column feature with photos on aerosols for handicrafts and hobbyists.

Hairdo—The March issue of this bi-monthly magazine (500,000 circulation) carried a two-page illustrated feature article on proper use of hair setting and hair coloring sprays.

Business Week Magazine — Featured unusual aerosol product types now available in its high readership "Personal Business" pages in the July 29 issue. (Circulation 360,000).

Associated Press — A story on American women's increasing dependence on aerosols was sent by the women's editor of this largest wire service to more than 800 member metropolitan newspapers coast to coast on September 18.

House Organs—A specially prepared story kit with four paragraphs on aerosol work savers in the home was prepared and offered to more than 5,000 editors of company house organs.

Suburban Newspapers — An editorial, designed for use on editorial pages, and dealing with the aerosol boom and the established place of aerosol packaging in the home, was syndicated to 1,000 daily and weekly newspapers in September.

CBS Radio Network—Aerosols received an excellent plug on the CBS radio network show "It's New" on August 5, beamed to between five and six million listeners.

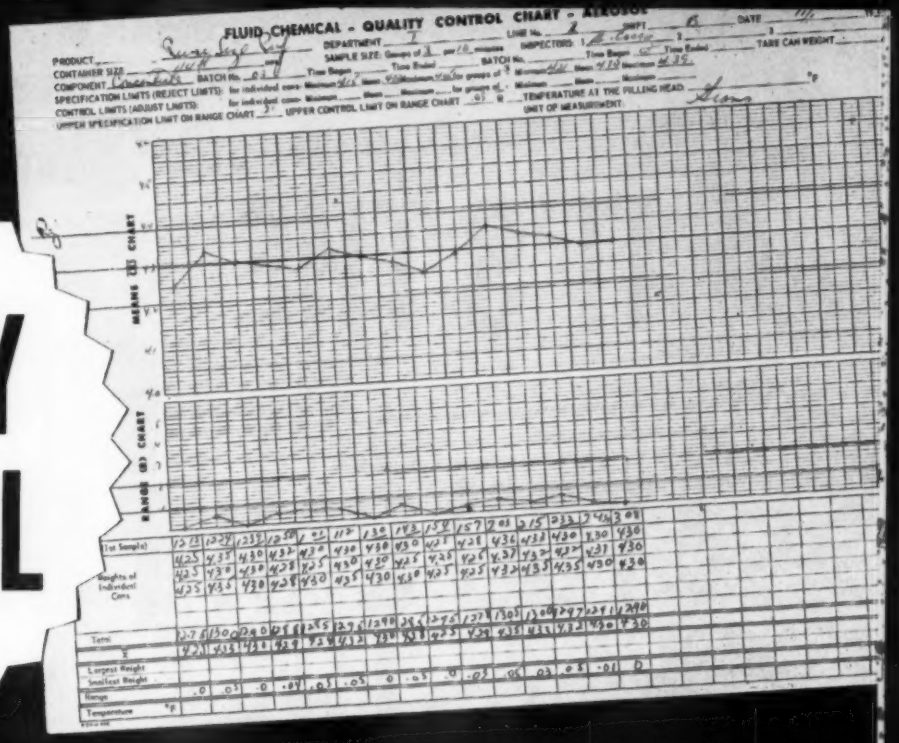
In addition to such major exclusive publicity, achieved principally as a result of contacts initiated by the Committee and agency with individual editors, a regular distribution schedule of feature and news stories is maintained.

Newspaper Mats

Since the first of the year, five photo-caption mats, each in two-column format, have been syndicated to 1,000 selected suburban newspapers across the country. Photo illustrations for these mats show

(Continued on Page 121)

QUALITY CONTROL



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• Quality control check point in cold-filling aerosol line in FLUID PLANT.

Uniform continuity of quality of customers' products is a prime objective of our filling service. "Let's look at the record"—for instance, the quality control record illustrated here. It shows the weights of sample aerosols removed at brief intervals from a filling line during an actual run. It is easy to see that such uniformity means real savings to the manufacturer.

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PHARMACEUTICAL AEROSOLS

IN THE UNITED STATES

(a status report)

*By John J. Sciarra, Ph.D.**

Associate Professor of Pharmaceutical Chemistry
St. John's University
Jamaica 32, N. Y.

THE application of the principles of aerosols or pressurized packages to medicinal and pharmaceutical products is a relatively recent development. While it is true that several spray-on antiseptics, burn preparations, and local anesthetics were available during the early years of the aerosol industry, it has only been over the past five or six years that serious interest has been given to the formulation of suitable pharmaceutical and medicinal aerosols. In 1960, over 11½ million units of medicinals and pharmaceutical aerosol products were produced. This represented an increase of 17.2% from the 1959 figure (over 10 million) and a 40.8% increase from 1958 (over 7 million). When one considers that less than one million units of these products were produced in 1952, the newness and increased interest in this area is quickly apparent. For 1960, pharmaceutical and medicinal aerosols accounted for about 4.8% of the total amount of personal product aerosols such as hair sprays and dressings, shaving lather, colognes, and perfumes. These personal products, amounting to over 243 million units accounted for the production of 40.1% of all types of aerosol products and represents the largest aerosol category.

Actually the use of pressurized containers for pharmaceutical products predates the aerosol industry as we know it today. Many will recall the physician's use of ethyl chloride for minor surgery. This consisted of ethyl chloride packaged in a glass ampule fitted with a valve. When held in the warmth of the hands the vapor pressure of the ethyl chloride would increase, allowing some of the liquid to escape when the valve was opened. However, this product has not been classified as an aerosol product in the light of the presently accepted definition of aerosol products.

From these humble beginnings, a host of aerosol products have evolved, varying from pharmaceutical ointments used topically to medicinal preparations intended for internal administration. These products have been formulated utilizing different types of aerosol systems, each system designed to serve a specific purpose.

SINCE the principles and considerations governing the formulation of aerosol products intended for internal administration differ from those involved in aerosols for topical administration, it might be advantageous to define several terms as they are used here. Generally speaking, an "aerosol" has been defined as a product which depends upon the power of a compressed or liquefied gas to expel the contents from the container. This product is expelled as a fine mist, foam, or a stream. The particle sizes produced by aerosols giving a fine mist are generally in the range of 10 to 50 microns. However for aerosols used internally, the particle size is considerably smaller.

Medicinal Aerosols may be defined as aerosol products used for the administration of therapeutically active ingredients as fine solid particles or liquid mists via the respiratory system and intended for prompt systemic effects or for local action in the lungs.

Pharmaceutical Aerosols are defined as aerosol products containing therapeutically active ingredients intended for topical administration. These products are generally intended for external use. A group of therapeutically active aerosol products fall *between* these two definitions. They are those products intended for local application in one of the body orifices such as ear, nose, throat, rectum, and vagina. Opthalmic preparations may well be included in this classification. Problems associated with this type of medication may be associated with either medicinal or pharmaceutical aerosols.

Propellants Used

Those propellants used in the formulation of other aerosol products have been used for both pharmaceutical and medicinal aerosols. The chief criterion determining which are used is their degree of toxicity and reactivity.

The propellants which are used are

* Presented at the Third International Aerosol Congress of the Federation of European Aerosol Associations, Oct. 3-8, 1961, Lucerne, Switzerland.

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LOW *in toxicity*

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The insecticidal qualities of butonate mean sure death to flies, gnats, mosquitoes, roaches, silverfish.* This unique pesticide, developed by the Wisconsin Alumni Research Foundation, has the power to paralyze the nervous systems of insects by inactivating an essential enzyme. At the same time, it is one of the safest insecticides known so far as human beings and their pets are concerned.

The demand for butonate has brought about savings through mass production, making it economical as well as effective, safe and convenient for consumers. Convenient because it is non-staining, inoffensive in odor, approved for use in aerosol, space and direct sprays.

Butonate is compatible with most nonalkaline insecticides and fungicides. It can be formulated with most of the commonly used organic solvents... as an oil spray, emulsion, wettable powder or dust for household use. Other promising applications are being investigated—including the control of insects affecting livestock.

Formulating and labeling information on butonate and samples are available from Prentiss. To improve *your* insecticides, get in touch today!

**Butonate's manufacture is licensed by the Wisconsin Alumni Research Foundation under U.S. Patent Nos. 2927881, 2911435.*

Prentiss Drug & Chemical Co., Inc.

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of both the liquefied and non-liquefied gas type. The fluorinated hydrocarbons are widely used in both pharmaceutical and medicinal aerosol products. They are noted for their low order toxicity, low reactivity, and general inertness. However, Propellant 11 (trichloromonofluoromethane), Propellant 12 (dichlorodifluoromethane), and Propellant 14 (dichlorotetrafluoroethane), are used to the greatest extent. Of these compounds, Propellant 11 is subject to hydrolysis and thus cannot be used in aqueous systems or those containing alcohol as a solvent. The acids formed would be irritating to the skin and mucous membranes, as well as causing many incompatibilities to take place. Recently, E. I. duPont de Nemours and Co. announced availability of a Propellant "11S" (which is Propellant 11 with the addition of a compound such as nitromethane). This is used to inhibit the reaction between Propellant 11 and ethyl alcohol. It has been claimed that Propellant "11S" has the same low level toxicity as Propellant 11. However, hydrolysis is still a factor. For the most part Propellant 11 has been replaced with Propellant 114. These are suitable for use in topical pharmaceutical products. It is Propellant 12, and in lesser instances, Propellant 114 which are finding use as propellants for medicinal aerosols.

Recent investigation by Tinney and Sciarra has shown that Propellants 142b and 152a (Allied Chemical Corp.'s General Chemical Division) are suitable for use in medicinal aerosols. Propellant 142b (monochlorodifluoroethane) and Propellant 152a (difluoroethane) have been found to be good solvents for some of the commonly used medicinal agents such as ephedrine, epinephrine, isoproterenol, atropine, cyclizine, ergotamine, etc. These propellants are less prone to hydrolysis than Propellant 11 and cause less irritation. While Propellant 152a tends to be slightly more flammable than some of the other propellants, the quantity of propellant used in medicinal aerosols is extremely small so that flammability ceases to be a problem.

Another propellant showing promise of use for medicinal and pharmaceutical aerosols is Propellant "C-318" (E. I. duPont de Nemours and Co.). This compound, octafluorocyclobutane, has been developed for use in food aerosols but may be applicable for medicinal uses. It is

TABLE I
CLASSES OF PHARMACEUTICAL AEROSOLS

CLASSIFICATION	PRODUCTS	ACTIVE INGREDIENT	FORM OF DISPENSING
Local Anesthetics and Antiseptics	Achrosurgic	Tetracyline 1%	Powder
	Betadine	Povidone-Iodine	Fine Mist
	Cetacaine	Benzocain Benzalkonium Cl, etc.	Fine Mist
	Obtundia	Metacresolated Camphor	Fine Mist
	Merthiolate	Thimerosol	Fine Mist
	Surfacaine	Cyclomethycaine	Fine Mist
	Tronothane	Pramoxine-HCl	Fine Mist
Adhesive Tape Removers and Bandage Adherants	Adhesive Balm	Benzalkonium Cl	Fine Mist
	Alco-Spray	Ethyl Alcohol-Acetone	Fine Mist
	Benzoin Tincture	Benzoin, etc.	Fine Mist
	Tape and Bandage Adherant	Rosin, isopropyl alcohol	Fine Mist
Athletic Products	Anti-fungal Spray	o-Carboxythionanisole	Fine Mist
	Athletic Liniment	Methyl salicylate, capsicum	Fine Mist
	Skin Toughener	Gum Benzoin	Fine Mist
Burn Remedies	Blistone	Chlorolutanol, menthol, etc.	Fine Mist
	Cool Spray	Hexachlorophene, etc.	Fine Mist
	Foille	Benzyl alcohol, sulfur, etc.	Fine Mist
	G-63	Hexachlorophene, etc.	Fine Mist
	Tannic Spray	Tannic Acid, etc.	Fine Mist
First Aid Preparations and Body Rubs	Acromycin	Tetracycline HCl	Fine Mist
	Alco Mist	Alcohol,	Fine Mist
	First Aid Spray	hexachlorophene, p-chlorometh axylenol	
	Silicone Skin Spray	Silicone, hexachlorophene	Fine Mist
Foot Preparations	Cool and Dry	Hexachlorophene Undecylenic Acid	Fine Mist
	Dill Mist	Hexachlorophene etc.	Powder
	Eeez Foot Conditioner	Dichlorophene, Zinc Undecylenate	Powder
	Enzactin	Glyceryl Triacetate	Fine Mist
	Foot Note	Hexachlorophene	Powder
	Fungi-Rex	Undecylenic Acid	Fine Mist
	Athletes Foot Spray	Undecylenic Acid	Fine Mist
	Juvene	Undecylenic Acid	Fine Mist
Germicidal and Disinfectant Agents	Bike Germicide	p-chlorometaxylenol	Fine Mist
	Green Soap	Green Soap, hexachlorophene	Wet stream
	S.S. Spray	Soap solution	Wet stream
	Synociden	Glycols	Fine Mist
	Tomac Aerosol	Green Soap hexachlorophene	Wet stream
	Turgasept	Quinoline Complex	Fine Mist
Spray-on-Bandages, Protectives	Aeroplast	Hydroxy-vinyl chloride-acetate	Fine Mist
	Bandamycin	Neomycin, PVP	Fine Mist
	Hilton Spray Bandage	Neomycin	Fine Mist
	Medi-Band	Neomycin	Fine Mist
	Neo-Band	Neomycin	Fine Mist
	Rezifilm	Meta acrylate Resin, PVP	Fine Mist
	Spray Band	Tyrothricin, Neomycin	Fine Mist
	Topasil	Silicone	Fine Mist
	Vi-Hesive	Resins	Fine Mist

(*Table Continued on Page* 68)

free from hydrolysis and has an extremely low order toxicity.

The hydrocarbons (butane, propane, and isobutane) have not been utilized to date for pharmaceutical and medicinal aerosols. While their low order toxicity make them suitable for use, their odor, taste, and high flammability discourage their use for this purpose.

Of the non-liquefied compressed gas propellants, nitrogen has found the greatest use. Its non solubility and inertness have made it the propellant of choice when dispensing certain pharmaceutical products in their original form such as vitamins, ointments, and creams. It is possible that future development of suitable actuators and baffles may allow the use of nitrogen and other compressed gases as propellants for medicinal aerosols. Since the size of the particles must be well below 10 microns for inhalation therapy, an efficient baffle is necessary. Present day technology in this area precludes the use of the compressed gases for this purpose.

Other compressed gases finding use for pharmaceutical preparations are nitrous oxide and carbon dioxide. These soluble compressed gases are used for a wide variety of purposes. Being soluble in the product concentrate, they cause the product to expand when emitted from the container. If the product is emitted through a foam type valve, the product will foam; or else a fine mist can be obtained through utilization of a mechanical break-up actuator and a non-foaming product concentrate. The type of formulation will determine the dispensing characteristics of the product.

The compressed gases are preferred over the liquefied gases for topical use due to their lack of chilling effect upon the skin. However, their shortcomings limit their use to only a few products. As the technology improves in this area, suitable methods may be developed which will allow for their greater use.

Valves and Containers

The containers used for pharmaceutical and medicinal aerosols are

TABLE I (Continued From Page 67)

CLASSES OF PHARMACEUTICAL AEROSOLS

CLASSIFICATION	PRODUCTS	ACTIVE INGREDIENT	FORM OF DISPENSING
Topical Dermatologics	Aristoderm Foam	Triamcinolone	Foam
	Dermeze	Thenylpyramine	Fine Mist
	Eeez Acnecare	Resorcinol, sulfur, etc.	Foam
	Hydrocortisyl	Hydrocortisone	Fine Mist
	Kenalog Spray	Triamcinolone	Fine Mist
	Meti Derm	Prednisolone	Fine Mist
	Meti Derm with Neomycin	Prednisolone, Neomycin	Fine Mist
	Neo Aristoderm	Triamcinolone, Neomycin	Foam
	Diloderm	Prednisolone	Foam
	Pantho-Foam	Hydrocortisone	Foam
	Rhulispray	Zirconium Oxide, etc.	Fine Mist
	Tarcortin Aerosol	Coal Tar Extract Hydrocortisone	Fine Mist
	Topicort Spray	Hydrocortisone	Fine Mist
	Coal Tar Solution	Coal Tar	Fine Mist
Topical Anesthetics	Americaine	Benzocaine	Fine Mist
	Dermathane	Propellant 114	Fine Mist
	Dermoplast	Benzocaine	Fine Mist
	Fuloro-Derm	Propellant 114	Fine Mist
	Fluoro-Ethyl	Ethyl Cl, Propellant 114	Fine Mist
	N.B.T. Spray	Bezocaine, Tetracaine Naepaine	Fine Mist
	Surgical Aerosol	Propellant 12 Propellant 11	Fine Mist
Veterinary Products	Aureomycin	Chlorotetracycline	Powder
	Chloramphenicol Spray	Chloramphenicol Gentian Violet	Powder
	Vapo-Mist	Cresol, Camphor, etc.	Fine Mist
Vitamin Preparations	Vi-Daylin	Multivitamin	Fine stream
	Vi Tyke	Multivitamin	Fine stream

NOTE — This table includes many of the products available in each of the classifications but is not intended to list all available products.

TABLE II

MEDICINAL AEROSOL PRODUCTS

NAME OF PRODUCT	MANUFACTURER	INGREDIENTS	USE
Aero Meter	Rexall Drug Co.	Methapyrilene HCl Neomycin Sulfate Phenylephrine HCl Phenylpropanolamine	Nasal Decongestant
Medihaler-Iso	Riker Labs	Isoproterenol	Anti-asthmatic
Medihaler Ergoiamine	Riker Labs	Ergotamine Tartrate	Migraine Headaches
Medihaler Epi	Riker Labs	Epinephrine Bitartrate	Anti-asthmatic
Medihaler Nitro	Riker Labs	Octyl Nitrite	Vasodilator
Medihaler Phen	Riker Labs	Phenylephrine HCl Hydrocortisone Neomycin Sulfate	Bronchodilator Nasal Decongestant
Nebu-Halant	Homemakers Products, Corp.	Contains no medication	Used as a nebulizer with separate medication
Mistometer	Winthrop Labs	Isoproterenol HCl 35% Ethanol	Anti-Asthmatic

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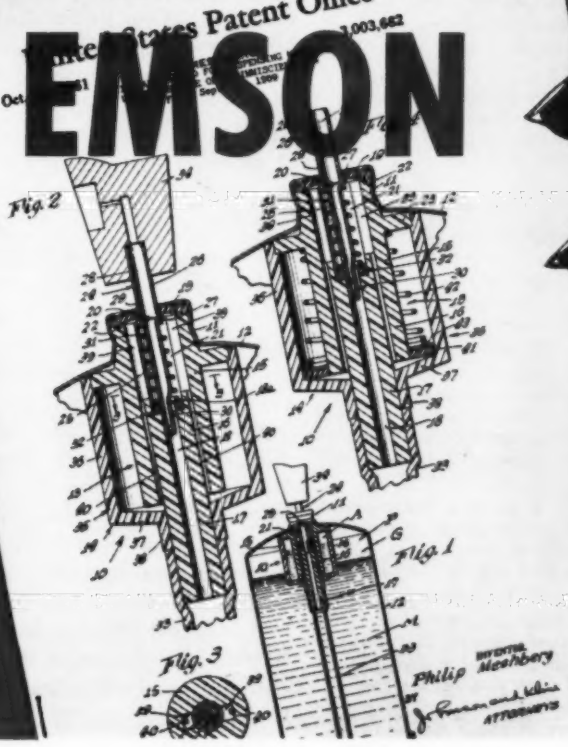

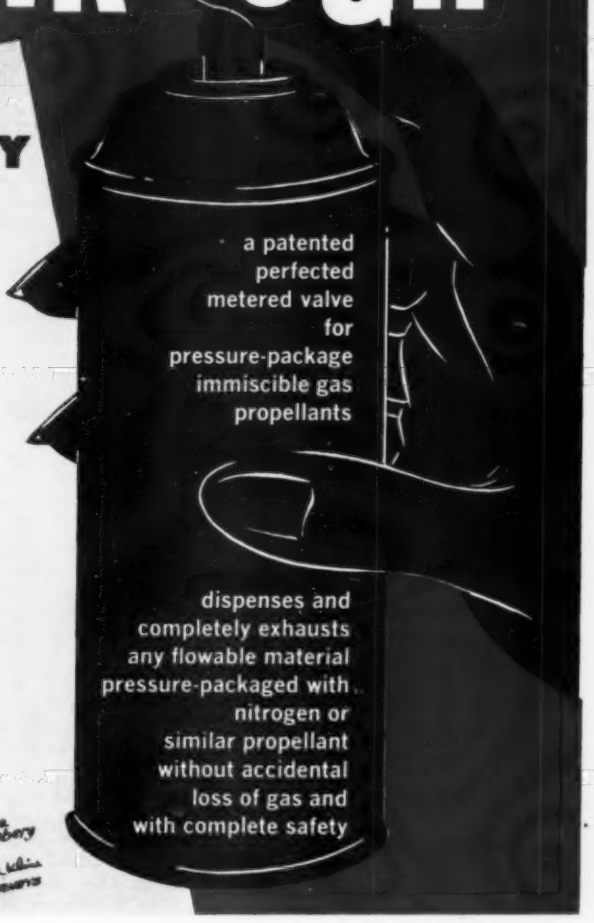

a patented perfected metered valve for pressure-package immiscible gas propellants

dispenses and completely exhausts any flowable material pressure-packaged with nitrogen or similar propellant without accidental loss of gas and with complete safety

Now you can pressure-package pharmaceutical, food, household and personal-type products never before practical or possible! Emson Research has perfected a metered valve for use with non-toxic, inexpensive and non-flammable immiscible propellants. This new valve can dispense in liquid, foam or spray form any product that will flow. Materials can now be completely exhausted from containers and the problem of gas loss, common to many types of valves used with immiscible propellants, has been eliminated.

The Emson Nitrogen Metered Valve brings the advantages of "push-button" packaging to many new types of products. Yours may be among these. For more information, send sample and package details to Dept. NM-3.

This new metered valve for nitrogen and other immiscible gases is exclusive with Emson.

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similar to the usual type aerosol containers. Since these products are generally more expensive than other aerosols, smaller containers are used, the largest being 8-12 ounce in capacity. Most products are packaged in 2-6 ounce size, with some medicinal aerosols packaged in glass and stainless steel because of the inertness and esthetic value of such containers. Since these containers are usually less than one ounce in size, cost does not present a problem. These containers generally receive special treatment in the form of a "pharmaceutical wash" consisting of an acid or alkaline water bath followed by rinsing with distilled water.

With the exception of medicinal aerosols, control of dosage can be regulated fairly accurately by means of standard non-metered aerosol valves. This is sufficiently accurate for topical preparations. However, when one deals with potent medicinal agents such as ephedrine, epinephrine, atropine, isoproterenol, digitoxin, etc., means for accurately controlling the amount ingested must be available. For this purpose, metered aerosol valves have been developed and are generally accurate between 5-10% of the stated delivery rate. While it is desirable to have this figure below 1%, the error involved is not too significant since the dosage of the product is small.

Aerosol Advantages

Before considering other aspects of pharmaceutical and medicinal aerosols, a discussion of the advantages of aerosol products might be desirable.

A—General Aerosol Advantages

1. The product is more convenient to use, since the package is a compact unit and can be applied or administered easily and quickly.

2. Since the medication is sealed in a pressurized container, there is no danger of contamination of the product with foreign materials, and it can be protected from the deleterious effects of air and moisture.

3. If the product is packaged under sterile conditions, then sterility is maintained throughout the life of the product.

4. Through use of metered valves accurate dosage can be obtained.

B—Advantages of Topical Aerosol Preparations

1. The irritation produced by the mechanical application of a medicinal over an abraded area of the skin is reduced and sometimes eliminated by a "spray-on" aerosol.

2. Pressurized powders, such as antibiotics, can be conveniently used in this type of container.

3. There is no danger of contaminating the unused portion of the aerosol medicament from an infected wound as is possible with conventional packages.

4. Since the medicinal is added directly from the container to the affected area of the skin, there is no waste or messiness through the use of an applicator or cotton swab.

5. Liquefied gas aerosols will dry rapidly due to vaporization of propellant, causing a cooling effect which may be desired in certain cases.

6. The medication can be applied in an extremely thin layer directly over the affected area. This results in faster absorption and more efficient utilization of a given amount of medication.

C—Advantages of Medicinal Aerosols (Inhalation Therapy)

In addition to the above mentioned advantages, drugs administered by inhalation would have many advantages compared with other routes of administration.

1. Medicinals formerly given as an injection can be given by inhalation, thereby making it more convenient for self-medication at home by the patient rather than by medically trained personnel in the office or hospital.

2. Response to drugs when administered by inhalation is prompt, faster in onset of activity as compared with drugs given orally, and with most drugs approaches intravenous therapy in rapidity of action.

3. Since the drugs are absorbed directly into the blood stream via the lungs, there is no decomposition or loss of drug in the gastrointestintal tract, as when the drug is administered orally.

4. The dangers of giving medicinals by injection (trauma, enbolism, sterile abscesses, etc.) are avoided, since inhalation therapy will often replace an injectable product.

5. The use of medicinals by inhalation does away with the necessity for elaborate sterile preparations necessary for parenteral administration.

Pharmaceutical Aerosols

These products have been developed as fine sprays, foams, powders, and semi-solid preparations. Since they are used topically, local irritation is an important consideration. Other considerations, as outlined by Porush are as follows:

1. Compatibility of component ingredients.

2. Wetness or spray characteristics, including rate of propellant and co-solvent evaporation.

3. Stability of the drug in contact with the container and valve parts.

4. Effect of the aerosol solution and drug on the container and valve (including corrosion of metals and deterioration of gaskets).

5. Appraisal of dermal toxicity.

6. Clinical evaluation of the drug.

Products suitable for topical administration would include the following: foot products, intended for use on the feet as antiseptics, deodorants, drying powders, cooling preparations, astringents, and fungicides, dermatological preparations; steroids; antihistamines; burn preparations; antipruritics; protectives, cleaners, emollients, lubricants, and spray bandages.

A major problem arising in the formulation of these aerosol types is selection of a suitable cosolvent so that a two-phase aerosol system may be achieved. This is desirable where possible. Ethyl alcohol is a good cosolvent because it is completely miscible with the usual propellants. When applied to broken areas of skin, mucous membranes, burned areas, alcohol is not desired due to its stinging sensation. Other cosolvents such as propylene glycol, polypropylene glycol, isopropylmyristate, polyethylene glycols, some fixed oils, glycerin, liquid petrolatum, etc. may be used.

Table I shows the classes of pharmaceutical aerosols developed in the United States and gives several examples of each type. Some typical aerosol formulas follow:

I—*Athlete's Foot Spray*

Dichlorophene	0.04%
Hexachlorophene	0.02%
Dipropylene Glycol	8.00%
Deltyl Extra	2.00%
Menthol	0.04%
Perfume	0.10%
Propellant 11/12 (50/50)	89.80%

This product dispenses as a fine spray. It is generally packaged in a metallic container.

(*Continued on Page* 126)

New "Glade Mist" Package Wins 1961 Aerosol Contest

"GLADE Mist Air Freshener," a new package introduced nationally in October by S. C. Johnson & Son, Inc., Madison, Wis., was selected as the best-designed package among nearly 500 entries in the Tenth Annual Aerosol Packaging Contest, sponsored by the Chemical Specialties Manufacturers Association. In addition to winning the grand award as "best of show," the product won top honors in the room deodorants class.

The air freshener package uses a valve-integrated cap by Valve Corp. of America and a Crown can. Paper labels were designed by Chermayeff & Geismar and supplied by Western Printing & Lithograph Co. The package, featured on the cover of the November *Aerosol Age*, is expected by Johnson executives to give a big sales boost to the air freshener market.

In addition to the fact that the major award went to a nationally advertised package introduced a few weeks previously, the 1961 contest was noteworthy from two additional standpoints. The number of entries was the largest in the contest's history (last year's 270 had been the record), and foreign entries continued to score very well in the final decision of the judges.

Durazone (Sales) Ltd., London, England, marketer and still a relative newcomer to the aerosol industry, once again did well with its uncluttered package design. Durazone won the grand award and three category prizes in the 1960 CSMA contest and in October 1961 the company won the Grand Award and two additional category prizes in the first European Aerosol Package Competition. In this CSMA contest, Durazone's "Tex Sunspray" won first place among entries in the Personal Products Category, and its "Dew

Garden Spray" won best-of-class for Horticultural Products.

Three other British products won four more prizes, giving the British a total of six of the hotly contested 16 category prizes. Mondart Ltd., London (incidentally, a competitor of Durazone) won a dual prize with its "Max Fly Killer." It was adjudged the best Foreign Entry and won the award in the class titled Insecticides, Repellents, and Moth Proofers. For the "Hair Preparations" Award, "French of London Spray Set," marketed by French & Scott Ltd., also London, won first prize. "Bitches" a product of Messers Osmonds (Pharmaceuticals) Ltd., Grimsby, won the award in the Veterinary and Pet Products class.

Through a technical peculiarity in the rules governing the judging, there were two "repeats" from the 1960 contest winners. Chesebrough-Pond's, Inc., New York, re-entered its "Seaforth Spiced Minute Shave" on the basis of a new flared plastic overcap and repeated its previous victory in the Shave Products class. "Dry Lube," a product of Brandywine Photochemical Co., Avondale, Pa., apparently in quest of a Grand Award this year, again took a first in the Industrial Products class.

"Shut out" from a prize in 1960 for the first time in five years, Rexall Drug Co., Los Angeles, came back strongly with the top category award in a class called Perfumes, Colognes, and Toilet Water (metal container). Its product is "Shari Mist Cologne."

The other two awards in the Colognes, Perfumes and Toilet Waters class both went to The House of Fragrances, Inc., New York. One for best designed glass container (dressing table size) went to its L'interdit Mist Concentre" and another for best designed purse size aerosol went to "Crepe de Chine."

A newcomer to the coatings field won the award in the Paints, Enamels, and Protective Coatings class and a veteran company proved the value of its tested design in the Food category. "Fixatif" Spray, a product of Eagle Pencil Co., Danbury, Conn. won the coatings award and Reddi-Wip, Inc., Los Angeles scored in the food packages.

The remaining three category prizes were these:

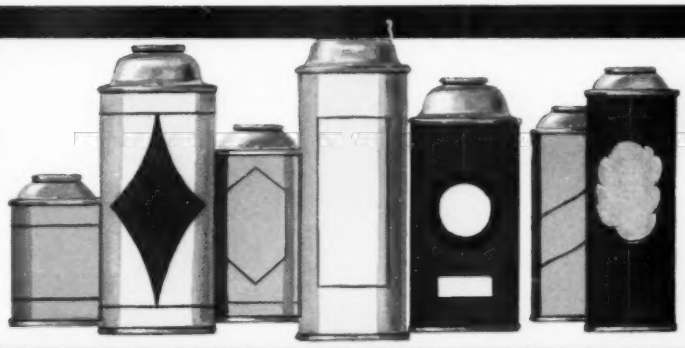
Automotive Class: "Bumper Wax," a product of Turtle Wax, Inc., Chicago.

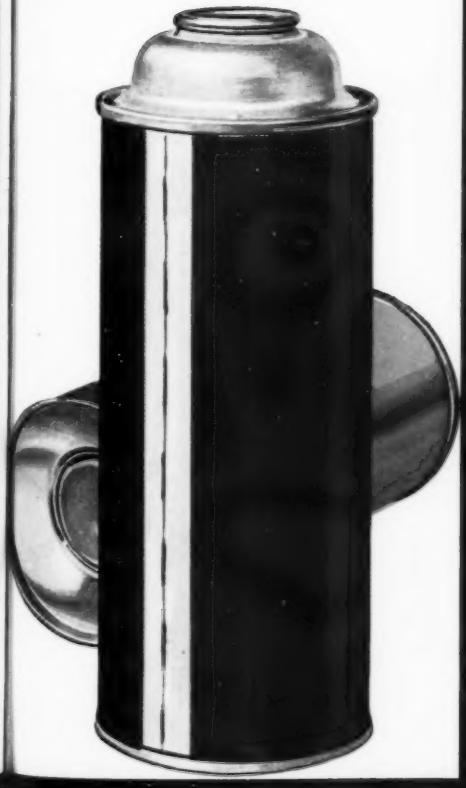
Household Products: "Renuzit Spray Wax," a product of Renuzit Home Products Co., Philadelphia.

Medicinals and Pharmaceuticals: "Atha-Spray," a product of Young's Rubber Corp., New York.

Virginia Graham, noted television and radio personality, shows off "Glade Air Freshener," an S. C. Johnson product which won top honors as the best designed aerosol among nearly 500 entries in the CSMA's Tenth Annual Packaging Contest. Other judges participating in the contest included (left to right) Peggy Shipprell, promotion director for Shopping Center Showcase, New York; Isobel Kratovil, New York City housewife; George Glenn, editor, *Chain Store Age*, New York City; Gilbert Snyder, president of Snyder Associates, New York; Lawrence H. Zahn, president of the Packaging Institute; and Charles Robertson, professor of Arts, Pratt Institute, Brooklyn.

NO MATTER HOW YOU LOOK AT IT CONTINENTAL HAS THE RIGHT AEROSOL CAN FOR YOU





Bottom, top and all around, Continental's aerosol cans have features you've been looking for:

- Dimpled nibs on the dome allow for a less expensive, single shell overcap.
- Recessed bottom for stacking means firm, attractive displays... neater shelving... easy storage
- Tri-com solder now makes for a strong side seam inside and out.
- Pre-soldered striping provides superior product protection.

Continental was first in 1947 with low pressure aerosols, and is still leading the field in design ingenuity and production capability. If you're looking to increase your sales through the use of aerosol cans, call Continental. Our Technical Center in Chicago, staffed by top-flight engineers and researchers, will work with you to develop the aerosol can that's right for your product. Added service like this is why—Whatever you package, whatever you produce, Continental has the right container for you.

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*When all is said and done... there is just one thought at this time of year—

Merry Christmas

and every good wish for the new year

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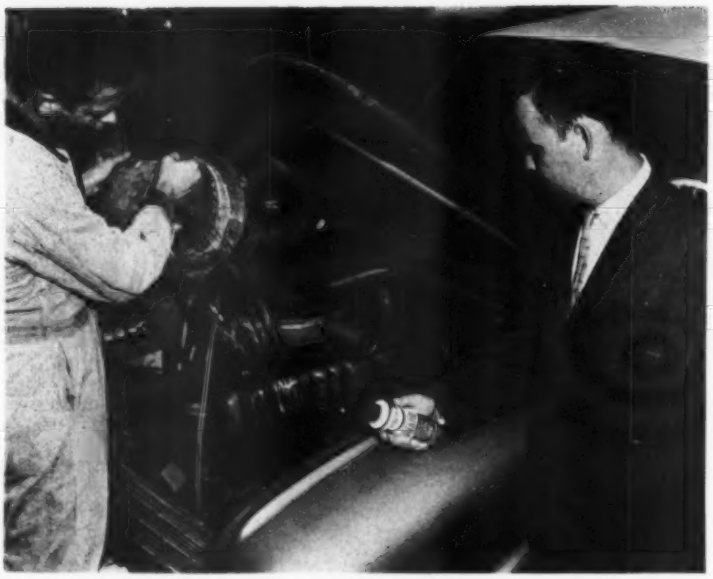
Krylon, Inc., Norristown, Pa., has just added a blue to its line of fluorescent colors. Other colors presently in the line are red orange, yellow orange, sunset gold, lemon yellow, cerise, and green. The paints are said to be up to four times brighter than ordinary colors.

Sight Saver Spray, a fluid silicone product for eyeglasses and other fine glass surfaces, is a new product of Dow Corning Corp., Midland, Mich. It is packaged in a decorated aluminum "Peerasol" by Peerless Tube Co. and uses a metered V.C.A. valve. Retail price of the package, which will be distributed through the optical trade and optical departments of department stores, is $1.25.

Capri Cosmetics, Inc., Memphis, Tenn., has introduced its **Capri Hair Mist** with a small refillable bottle supplied by Owens-Illinois. Valves are by Newman-Green, Inc.

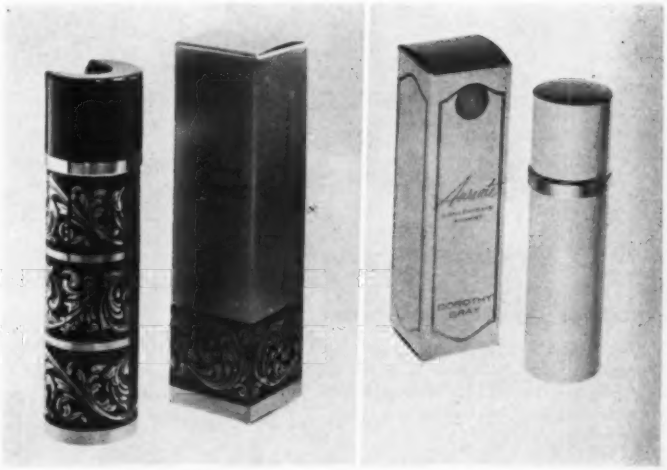
Meadow Chemicals Division of Zoe Chemical Co., Inc., Brooklyn, N. Y., has introduced a new spray starch and window cleaner, both in 16-ounce cans made by Crown Cork & Seal Co.

NEW PRODUCTS AND PACKAGES



Moisture Guard is a new spray to fight corrosion and prevent ignition shorting due to moisture. Package employs Newman-Green valve on American Can container. Product, which retails at $1.75, may also be used a metal protectant and as a penetrating lubricant for corroded nuts, bolts, etc.

Casco of Sweden has just introduced this giant 32-ounce pyrethrum aerosol insecticide with an Emson metered valve. Aluminum can is supplied by Krieg & Zivy, Paris, with cap by Glimpex, Oslo, Norway. Can stands 13 inches tall.



Two new perfume packages using V.C.A. metered valves and actuators are **Aureate Concentrate Atomist,** a product of Dorothy Gray, New York, and **Golden Accent,** a product of Fuller Brush Co., Hartford, Conn. Aureate package uses 2¼ "Peerasol" by Peerless Tube with collar and overcap by Virjune Manufacturing Co. Golden Accent package uses entire package by V.C.A.

Melt is new de-icer product just introduced by Westley Industries, Cleveland. 16-ounce can will retail at $1.35 and is said to work effectively down to 20° below zero.

Lily Dache Hair Styling Mist is a new product of Lily Dache, New York Gold, black and white package uses Sterling Seal overcap and Precision valve.

NOTHING ENDORSES THE QUALITY STANDARDS OF A MANUFACTURER LIKE REPEAT ORDERS FOR PRODUCTION RUNS

Far greater latitude is allowed designers of aerosol containers when production is scheduled for the newer plastics manufacturing equipment and compounds. As a result, consumer appeal is immeasurably increased while costs are held in line. • May we discuss your needs with you?

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a history of

Aerosol Valves

with a look at the future

By Joseph J. Gregory*

Sales Manager
Newman-Green Inc.
Addison, Ill.

IF I were to ask people in the Aerosol industry when the first dispensing valve for a so-called "low pressure system" was developed, few would guess *within* 20 *years* of the date the first such patent was issued. It was in 1901 that Dr. Gebauer was awarded a patent for a "Receptacle and Container for Administering Volatile Liquids". Ethyl chloride and other volatile liquids were held in a container equipped with a simple needle valve, which opened into an intermediate chamber, which in turn had a delivery nozzle. The following year, Gebauer obtained another patent for a similar type device which delivered either a spray or a stream. Since the time these patents were issued, many similar devices have been patented for all types of dispensing mechanisms for pressurized products.

In 1933 Eric Rotheim was granted a patent on a valve design which permitted the material, together with a considerable gas dissolved therein, to expand totally or in part on its way to the discharge opening. The expansion of the liquefied gases within the valve body produced some undesirable characteristics with insecticides, so it was necessary for two U.S. Dept. of Agriculture scientists to make further changes of existing designs in order to produce the desired spray pattern and particle size in the insecticides with which they were primarily concerned. It was Dr. Sullivan and Dr. Goodhue who produced the first high pressure type insecticide package which latter became standard equipment for the U.S. Armed Forces.

One interesting sidelight to this story is that Dr. Goodhue had an extremely difficult time convincing the supply departments of the various military services that an item of this type would be useful. He was so convinced of the extreme value of the invention that he resigned from the U.S.D.A. and with several other men formed Airosol, Inc., in Neodesha, Kansas. It was this company, along with several others, that undertook the task of supplying high pressure insecticide "bombs" to the U.S. Government for its military requirements.

When World War II ended, the potential of the military "bug bomb" for the consumer market was quickly recognized by Airosol, Inc., Regal Chemical Co., Westinghouse Electric Corp., Knapp-Monarch, and Bridgeport Brass Co. Soon after the cessation of hostilities these companies, already operating the equipment to make and fill the high pressure "bombs", turned their efforts to developing the peace-time consumer market. About this time the first high-pressure aerosol insecticide was introduced to the public. Valves had undergone changes which made it possible to spray as little or as much of the insecticide as necessary, simply by regulating the dispensing mechanism. Knapp-Monarch even featured a convenient push-button level-operated valve on its package.

Though it was primarily designed for insecticides, some companies began to utilize the high pressure package for marketing such other products as room deodorants and cold remedy formulations. Although these products were generally very efficient, high cost of the package was so serious a deterrent to the growth of the market that total sales volume never went very high.

About the same time these high pressure units were being introduced to the public, project engineers at Continental Can Co. and Crown Cork & Seal Co. were investigating the possibilities of manufacturing a container which would be suitable for low pressure aerosol formulations. Crown Cork & Seal had the equipment to manufacture drawn containers which were being sold to the beer industry. With a few changes, the existing equipment could be used for manufacturing low-pressure aerosol containers.

One of Dr. Goodhue's associates at Airosol, Inc., was Clifford Greenwood, who designed a pressure valve and applied for a patent on it in 1946. Utilizing a shell container manufactured by Crown, with some necessary modifications to make it possible to attach Mr. Greenwood's valve, Airosol, Inc. marketed the first low-pressure aerosol package under the name "Jet Power Insect

* Presented at the fourth annual meeting and conference of the Canadian Manufacturers of Chemical Specialties Association, Toronto, Oct. 30-Nov. 2.

When the packaging is aerosol* . . .

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Faces Out of the Past . . .

FORTY years ago, just as today, it was standard procedure to have a group photograph taken at every association dinner. The photographs on pages 83 and 85 are taken from the collection accumulated by Magnus, Mabee & Reynard over the years.

The picture of the dinner of the Salesmen's Association of the American Chemical Industry (S.A.A.C.I.) is a rare item indeed. This was probably one of the first meetings of the group, which is still very active today. Survivors recall that the affair started with prohibition-style "dynamite cocktails," and never got very far beyond the first course, which was minestrone soup. Identifiable in the group of celebrants are such prominent figures in the chemical industry of the early Twenties as: Col. Joseph Wrench, Ralph E. Dorland Sr., August Merz, Ira P. MacNair, George Ashworth, P. C. Magnus, John Chew, Charles Concannon, August Wasserscheid, Charles Herman, Frank McDonough and Bill Lambert.

The 1921 "Get Together Dinner" of the Druachem Club (page 85) followed the S.A.A.C.I. dinner by just a short week, with a number of the same guests present. The Druachem Club had as members a representative cross section of representatives of drug and chemical firms, who regularly lunched together. The organization disbanded in the late Twenties or early Thirties. Among those attending the 1921 dinner were: P. C. Magnus, George McKelcan, Joseph Huisking, Bill Fischer, Louis Spencer Levy, P. R. Dreyer, George McGlynn, Bill Lambert, Peter Dirr, Charles L. Huisking, Ben Spencer, Robert B. Magnus, Charlie Herman, Steve Urban, Frank McDonough, August Wasserscheid and Bill Barry. J. B. Magnus, curator of the M M & R museum of antiquities, who supplied *Aerosol Age* with the photographs, surprisingly enough does not appear in either photo, leading to the belief that the question "Where's Joe?" was of even earlier origin than had heretofore been realized.

Killer." This marked the beginning of the low pressure intermediate pressure aerosol industry.

FOR Continental Can Co., the change or adaptation of their existing equipment was not quite so easy as it had been for Crown. In order to justify the expense of a new can manufacturing installation, of necessity the volume would have to be substantial, and some idea of the future of such a package would have to be determined. One further problem confronting Continental Can was obtaining a suitable valve or dispensing unit for their can.

All the known sources of such mechanisms, including the manufacturers of automobile tire valves, were tried, and although the valves they supplied were satisfactory from the standpoint of particle size and delivery, the materials used in the valves would not withstand the solvent action of the insecticides. Even if it had been possible to obtain satisfactory materials for the valve parts, the high cost factor could not be overlooked.

Many other companies manufacturing specialty products submitted valve samples to Continental Can, but for one reason or another none of these proved satisfactory. Finally, through the combined efforts of its Research and Engineering Departments, Continental chose a valve designed by one of its own top engineers as the valve to be marketed on its low-pressure aerosol can. It was many months later that the company finally solved most of its production problems and began offering the can and valve unit commercially to all those interested in aerosol packaging. This was the first time any company offered a container and valve as a package.

To digress just a moment, let us list the features of the aerosol valves then available to the public:

1. They were available from *only* one source of supply. While there were several companies making valves in the late 1940's, only one, Continental Can, made them available to the whole market. The other companies manufactured valves exclusively for their own products.

2. Construction of the valve made it commercially impractical to fill by the pressure fill method, thus necessitating the use of costly refrigeration equipment.

3. Cost of valve and can were roughly 2½ times present day costs. However, this was not a real deterrent to the development of the industry, since it did permit substantial budget items for research and development of new valves, products, and packaging changes.

4. Due to limitations in the valve, products had to be tailor-made to the aerosol package. Such factors as viscosity and propellant-to-product ratio had to be closely controlled or else spray pattern would be seriously affected. The product had to be able to withstand sub-zero temperatures without precipitation or "drop out" of any of the ingredients. This eliminated water-base products from aerosol packaging.

5. Container construction limitations made virtually impossible the creating of distinctive package designs, and all packages looked similar.

6. Only products designed for space spray or coating application could be considered for aerosol packaging.

(*Continued on Page* 87)

HOUSE & GARDEN

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USED INDOORS AND OUTDOORS

Both the manufacturer and the consumer appreciate the advantages of a multi-purpose, non-toxic aerosol. One that can be safely used in the house to efficiently control flies, mosquitoes and roaches and just as safely and efficiently used outdoors to control garden insects.

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Such latent demand exists for other new aerosol products—perhaps for a product you now market in another form. You need no heavy capital investment or all the answers to "go aerosol." *Write Pennsalt.* As producers of ISOTRON® propellents—used to power scores of successful products—we offer valuable counsel to marketers—can recommend contract packagers who can supply you with all the help you'll need with product formulation, technical aid and packaging.

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Faces from the Past (See Story - Page 80)

Faces from the Past (See Story - Page 80)

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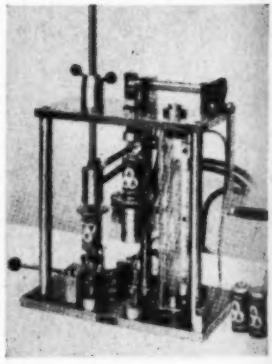

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Faces from the Past (See Story - Page 80)

make things move with aerosols

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Aerosol Valves

(*From Page 80*)

With each passing year, the public became more interested in the aerosol package—and at the same time several companies came to envision the possibility that this infant industry might become a giant within a very few years. By the early 1950's, several companies had been formed for the express purpose of manufacturing aerosol valves. Several of these designed and manufactured valves for the standard "beer-type" container, while others saw the possibilities of utilizing a standard one-inch mounting cup for attaching the valve to the can. The first valve utilizing this one-inch mounting cup was invented by two engineers of Bridgeport Brass Co. (Lowen and Efford in 1952); but as was the situation with Airosol Co., Bridgeport Brass restricted use of the valve to their own products or those of companies who contracted for their filling services. Consequently, fillers in competition with Bridgeport Brass were forced to go elsewhere.

DESIGN of the first valves utilizing the one-inch mounting cup was basically for space sprays—though there seemed to be the possibility of utilizing these valves for other products. The possibility of pressure filling these valves attracted renewed interest. Coating of the containers with corrosion-resistant enamels became a standard operation for the can companies. Unique packaging designs, with special caps and spray heads, further interested package designers of merchandising companies. The aerosol industry was now well on its way to becoming one to be reckoned with.

With the increases in volume for the years 1951-1953, Continental Can decided in 1963 it could best serve the industry by discontinuing the manufacture of valves to concentrate on improving container design and construction. The fact that the company was encountering stiff competition on valve designs and uses probably had much influence on the decision.

To appreciate the growth of the aerosol industry over the last ten years, it should be pointed out that the total volume of all aerosol products packaged in the United States in 1951 was approximately 34 million units. Of this total, insecticide sprays accounted for 50% and room deodorants 25% of the total volume. Hair sprays, shaving lathers, medicinals, pharmaceuticals, and other personal products, accounted for only 6% of the total volume. Even though shaving lathers, hair sprays, colognes and perfumes, etc. constituted so small a part of the total market, they indicated a trend in the development of new ideas and new packages for the consumer market.

With new ideas came new requirements for both the design and function of aerosol valves. A glass container was developed and made commercially available for aerosol products, and this of course, required a valve of distinct construction and style which could be conveniently attached to the glass container. Water-based products were being developed, necessitating fabrication of valve parts of corrosion-resistant materials. New coating materials for the mounting cups had to be tested.

Changes in design were made in order to make valves easier to pressure fill. Pressurized shaving cream began its rapid rise to one of the top volume items in the field. New style spray buttons, with greater variation and selection of orifice dimensions, were introduced.

This all set off something of a chain reaction. As a result of improvements in valve design and construction, new products were made available in pressurized form. And with every new valve innovation, more products were lending themselves to packaging under pressure. Of course, some new products could be improved by minor changes in the valves. But when the valve companies made these small changes, they discovered additional improvements

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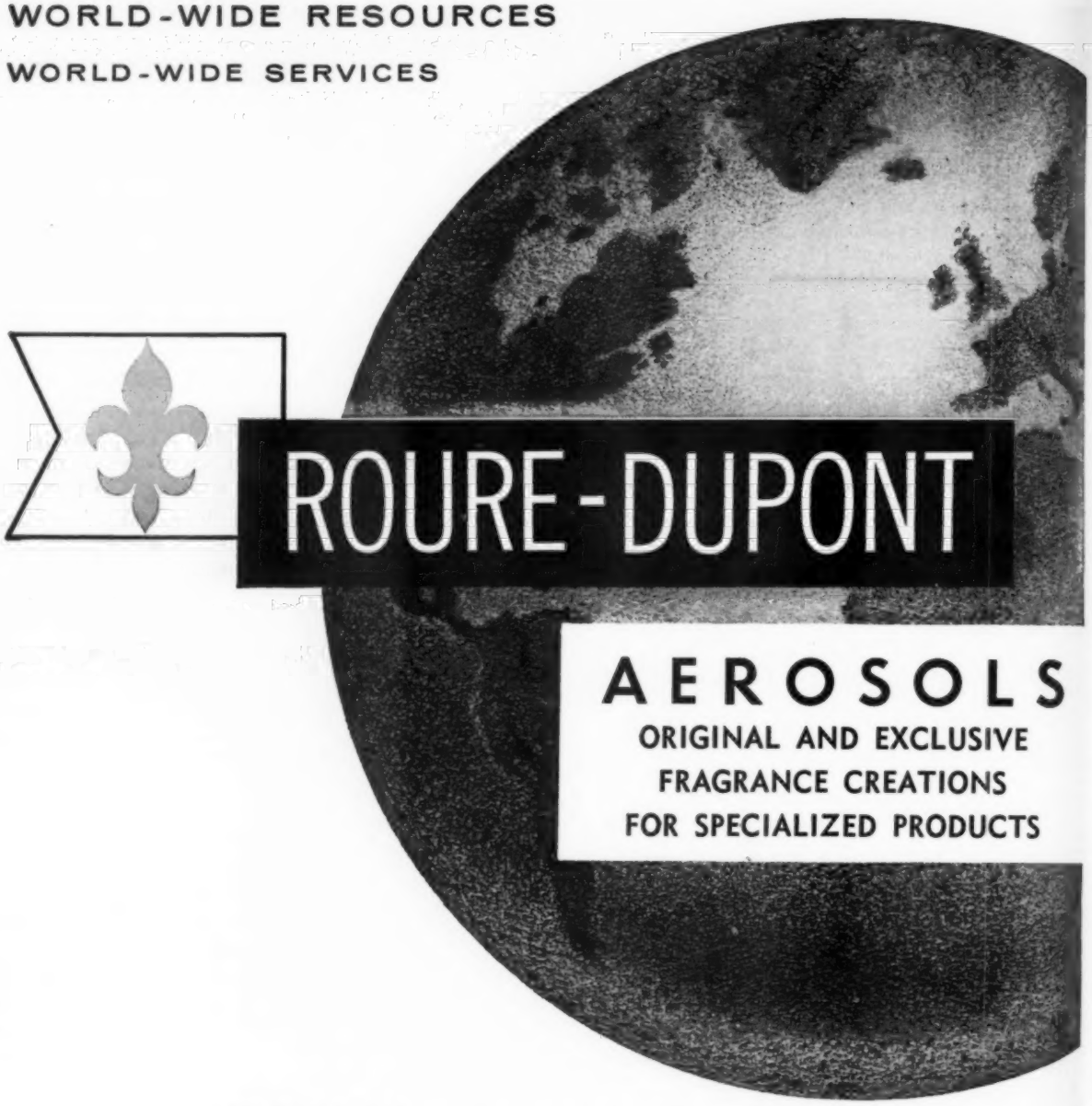

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could be made on their valves, enlarging still further the area of application for many products.

To list all of the variations in valves which have taken place since the first valves became commercially available would be an extremely difficult task. Mention of a few types of commercial aerosol products will furnish some idea of the progress; pharmaceuticals in measured dosages, vitamins in drop form, perfume in metered quantities, all types of surface coatings, talcum or antibiotic powders, meat tenderizers, salad seasonings, and dressings. Many types of cosmetic items, such as hair sprays, hand lotion, and cologne, have become leaders in aerosol volume, and all have different valve requirements.

Every month the possibility of packaging different types of food items in pressurized form is increasing. Recent Food and Drug Administration approval of propellant "C-318" has given additional momentum to the food field. Compressed gases used individually, in blends, or in conjunction with a propellant of the halocarbon family have created new interests in products once tried but abandoned because of unsatisfactory results with the then existing materials. Many new versions of old products, utilizing new propellant systems, are being investigated. Some of these are polishes which were solvent-base materials, which now have been successfully reformulated from a water base. And this trend is being felt in other areas.

Formerly basic insecticide formulations were always based on kerosene or a similar solvent. Now, new insecticide formulations based on water are being tested, and I understand the U.S.D.A. has already approved several formulations of this type. Room deodorants, too, are now being packaged in water solutions, thus eliminating the problem of staining—once a prime area of worry in formulations of this product.

WHAT have these recent changes in basic formulations done to valve requirements? First, it has

(*Continued on Page* 123)

AEROSOLS in review

A summary of aerosol articles in other publications

A GOOD report on the third International Aerosol Congress, held in Lucerne in October, is a feature of the Nov. 11 issue of *Chemical Week* magazine. Although it contains much material reported in *Aerosol Age's* November coverage of the Congress, the article contains some information not included:

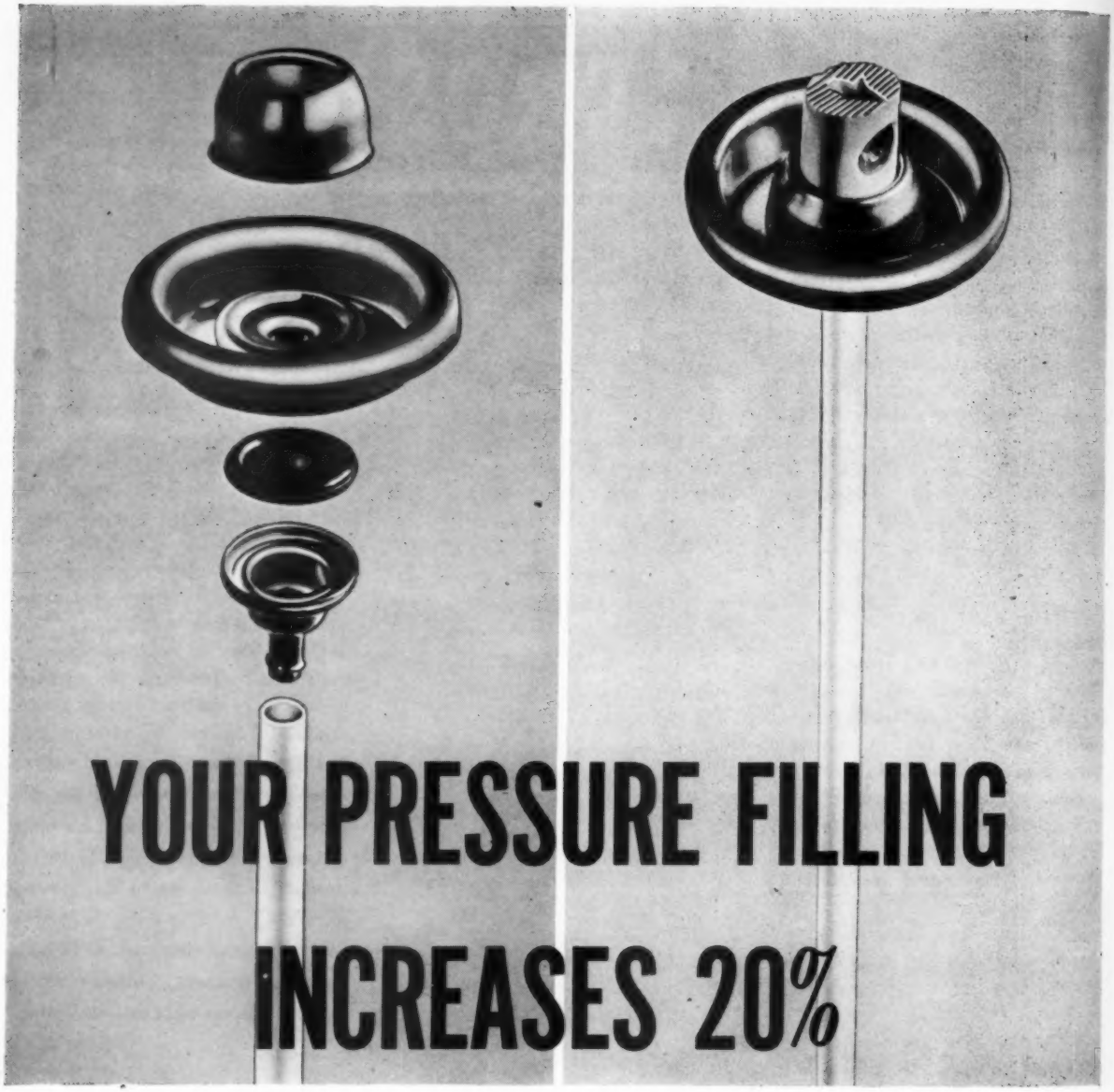
1. European container usage is classified (by K. Jacobi of J. A. Schmalbach) as 65-70% tinplate, 25-28% aluminum, 5-8% in plastic, and 2-3% in glass.

2. Although liquefied petroleum propellants are widely used in Europe, regulations proposed by "several national and international regulatory bodies" concerning transport of aerosol products could seriously restrict this use.

Chemical Week declares that the growth of aerosols "appears to be inhibited by two factors. One is price—said to be a handicap in the U. S. as well. In the past six months there have been substantial price reductions in many countries. But there *are* limits to possible reductions,— and they aren't always those of raw materials and manufacturing costs. In Switzerland, for example, retailer organizations rigidly control prices. Another growth-inhibiting factor, and perhaps more significant than the price barrier, is the conservatism of the average European consumer; it takes longer for a new product to catch on in Europe than in the U. S. But since both these problems are being tackled by skillful merchandisers, Europe's aerosol boom doubtless will continue." ★

Medical Economics, August 28, 1961

"Spray the waiting room once a day. This has Airwick and Miltown mixed."



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news of pressurized packaging

DuPont Appoints Hobaugh

Edwin B. Hobaugh has been named to the newly created position of product manager for lawn and garden chemicals in the Industrial and Biochemicals Department of the Du Pont Co., Wilmington, Del. As product manager he will be responsible for market evaluation of the product line and for the development of sales programs for both current and new products.

Mr. Hobaugh joined the Purchasing Department of the Du Pont Company in July, 1941, and later was assigned to the priorities and control section of the Grasselli Chemicals Department, which became part of the Industrial and Biochemicals Department in 1959. Since 1951, he has been working in agricultural chemicals sales administration. He was sales control manager for agricultural and garden products for seven years prior to his new assignment.

•

Phillips Ups Storage Facilities

Phillips Petroleum Co., Bartlesville, Okla., has completed storage and loading facilities at its Philadelphia terminal to provide tank truck deliveries of hydrocarbon aerosol propellants in the Eastern areas.

Available for tank truck deliveries are Phillips Aerosol Grade Propane, Aerosol Grade Isobutane, Aerosol Grade Normal Butane and the Pure Grade Isobutane-Propane Blend. Each is supplied from segregated storage through individual product filling lines. The propellants are manufactured at Phillips special products plant at Borger, Texas and are shipped in tank cars especially prepared for and used exclusively in this pure hydrocarbon service.

The Phillips tank trailer is a twin-barrel unit with each tank having a capacity of about 2500 gallons of propellant. The dual-tank arrangement permits delivery of two separate products, or about 5000 gallons of a single product, on one trip. Individual requirements for as little as 500 gallons can be delivered. The tank unit is used exclusively in aerosol propellant service.

•

Pfizer Buys Cosmetic Firm

Chas. Pfizer & Co., Inc., New York, announced last month the signing of agreements for the acquisition of the outstanding capital stock of Thomas Leeming & Co., Inc. and the assets of Pacquin, Inc. in exchange for an undisclosed number of Pfizer common shares. At the same time the agreements were approved by share owners of Leeming and Pacquin.

The two companies are corporately-linked firms which market Ben-Gay ointments, Pacquin Hand Creams, Silk 'n Satin Lotion, ManiMagic Cream Cuticle Remover, and other drugs and toiletries. Leeming markets the Ben-Gay products and Pacquin specializes in toiletries.

The Leeming and Pacquin businesses will be operated on a decentralized basis as wholly-owned subsidiaries of Pfizer. No personnel changes will be made in the operations. Edward B. Austin, now board chairman and president of the Leeming and Pacquin companies, will continue as board chairman and president of the subsidiaries. Thomas M. Cooney, formerly assistant to the president of Pfizer, will join the subsidiaries as executive vice-president.

Leeming and Pacquin maintain headquarters in New York City and a production plant in Parsippany, N. J. Leeming was established in 1881, Pacquin in 1923. Pfizer has been in business since 1948 and is a leading producer of prescription drugs, vaccines, agricultural products.

ATI Promotes Benjamin

David Benjamin has been appointed vice-president, manufacturing, of Aerosol Techniques, Inc., Bridgeport, Conn. Mr. Benjamin, who will direct the operations of Aerosol Techniques' main plant in Bridgeport, has been associated with the company since 1957 and was director of purchasing and assistant to the president prior to his appointment as vice-president, planning and engineering.

A graduate of Cornell, Mr. Benjamin was formerly with the management consultant firm of Lecker & Becker. A lieutenant-colonel in the Army Signal Corps in World War II, he subsequently served as director of operations and training of the Southeastern Signal School.

•

Revlon Shifts Advertising

Revlon, Inc., New York, last month announced transferral of about $5 million in annual advertising billings to Norman, Craig & Kummel from Warwick & Legler, Inc. which retains billings of about $2,000,000. The move will be effective in January. Norman, Craig & Kummel, which was a Revlon agency for eight years prior to 1956, will handle Living Curl, Eye Make-Up, Touch & Glow, Lipstick, Nail Enamel, Satin Set and Bronze Luster.

Warwick retains Silicare, Baby Silicare, Clean & Clear, Contempera Make-up and Persuade, in addition to several new products to be marketed later. Grey Advertising, Inc., with Revlon since February, 1960, handles other Revlon cosmetics and toiletries, including Ultima Make-up, Eterna 27, Top Brass, Moon Drops, Sun Bath, Hi and Dri, Color-Up, Love Pat, Intimate, Aquamarine Fragrance, Revillon and Balmain perfumes. It will also handle Aquamarine Lotion, transferred from Warwick & Legler.

Plasti-Kote Formally Opens New Plant

A NEW aerosol plant described as the "world's largest and most modern aerosol paint plant" was officially opened in Medina, Ohio, last month. It was the ninth new plant to open in Medina in the last two years, making the former sleepy little village one of the most active industrial centers in the Midwest. In a message to the management of the new Plasti-Kote, Inc. plant, Secretary of Commerce Luther Hodges congratulated the company and town. "By its energy and enterprise in attracting new industry, Medina has set a fine example to communities across the country that are seeking to boost their economy by expanding their industrial base and providing more jobs for their workers."

Costing more than $1 million, the new Plasti-Kote plant has over 100,000 square feet of ultra-modern manufacturing, laboratory, and warehouse space, according to Elias Shapiro, executive vice-president of the paint firm. Moreover, the plant (utilizing five acres of an expandable 20-acre tract) also has an additional 5,000 square feet of administrative and executive offices. "The plant will have an eventual production capacity of 50 million cans of spray paint a year," Mr. Shapiro said.

Other features of the plant include a railroad siding, seven truck docks, modern production line equipment, fireproofing, lighting, and safety equipment. Management of Plasti-Kote, Inc. predicts estimated yearly sales within the next few years of $20 million.

Opening day ceremonies at the plant were attended by local and state officials and featured a pageant showing the settlement of Medina by Connecticut families in 1819. The new plant was built by Amos Mears of the Medina Corp. Mr. Mears, a "retired" restaurant executive, came to Medina a few years ago and is considered responsible for the town's industrial renaissance. Mr. Shapiro credits Mears and the town of Medina for "making it possible for us to move ahead with this gigantic expansion production program."

•

Sea Tragedy Claims Cassullo

John L. Cassullo, president of Fritzsche Brothers, Inc., New York producer of essential oils and perfuming materials, recently died in a sea tragedy when a cabin cruiser from which he was fishing was lost off the coast of Peru. An internationally-known fisherman, Mr. Cassullo held a number of record big game fish catches to his credit.

Mr. Cassullo became president of Fritzsche Brothers in 1956, succeeding John H. Montgomery. Prior to assuming the chief executive position of the company he was treasurer.

An announcement about the tragedy was issued Nov. 13 by Frederick H. Leonhardt, Jr., vice-president. The announcement said that "exhaustive searches by land, sea, and air have revealed only remnants of the small cruiser in which he and two others evidently perished."

•

Katz Heads N. Y. SCC

Dr. Martin Katz was installed as 1962 Chairman of the N. Y. Chapter of the Society of Cosmetic Chemists during the November meeting held in the Regency Room, George Washington Hotel, by Dr. Sophie Plechner, president of the National Society. Other officers elected to serve the N. Y. Chapter are: Chairman elect, Arthur Cohane, Leberco Laboratories; treasurer, Robert Schiraldi, Colgate Palmolive Co., and Shirley De Ragon, secretary, American Cholesterol Products.

Bernard H. Nappen representing the Starch Applications Research Group of National Starch and Chemical Corp. was guest speaker at this meeting. His talk concerned starch and its modifications with its relation to the cosmetic industry. Mr. Nappen reviewed the fundamental chemistry and physical properties of starch with relation to its microscopic characteristics and versatility of its chemical modifications.

Dr. Sam Livengood, of Union Carbide Chemicals Co. will address the N. Y. Chapter of the Society of Cosmetic Chemists at its next meeting on Jan. 10. He will discuss polyoxyalkalene derivatives including polyethylene glycols, nonionic emulsifiers etc. and their molecular association reactions with a variety of common materials.

•

"Glis" Is Slated for Can. Market

"Glis Spray Starch," one of the first nationally-advertised aerosol starch products, and the companion product "Glisade Ironing Aid" will soon be introduced throughout Canada, George M. Thomson, vice-president and general manager of Shulton of Canada, Toronto, said early last month. His announcement came in the wake of purchase of Aerosol Corp. of America, Wellesley Hills, Mass., marketer of "Glis," by Shulton, Inc., Clifton, N.J., parent company of Shulton of Canada.

Mr. Thomson said he expects national distribution of the products in Canada will be initiated by advertising on television and in women's magazines.

Introduction of "Glis" to the U. S. market took place in 1959.

Chairman-elect Arthur Cohane, Martin Katz, chairman, Sophie Plechner, president of the National Society, and Shirley De Ragon, secretary.

Now... NEW Economy from AMCO

Complete, Versatile AEROSOL FILL Production Line in Single or Double Chain Offers 3 Major Advantages!

AMCO low-cost automatic Production Line produces up to 90 cans per minute in continuous operation... Cuts adjustment time to bare minimum.

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Switch on master control panel permits immediate changeover of propellant injector from liquid to gas operation.

3 **Efficient Operation:** Leakproof design of all stations and positive operation of all heads prevent loss of product or propellant... No-Repeat action prevents double discharge into cans, and eliminates damage to cans.

■ AMCO aerosal production equipment is custom designed and custom built for individual requirements. Individual units can be furnished for any stage of operation and additional AMCO units can be added later to expand the line. Equipment can be installed for straight line or "U" shape line to make optimum use of available space.

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Very versatile . . .

Can be used, for instance, in
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New Detroit Custom Filler Ready to Begin Operations

Architect's drawing of Rochester plant.

ROCHESTER Aerosol Corp., newly-formed company described as the first major aerosol custom filler in the Detroit area, will begin operations about Jan. 1. Organized in July 1961, the company will package a wide range of aerosol products ranging from insecticides to cosmetics and laundry starches.

The plant, providing 35,000 square feet of warehouse, manufacturing, laboratory, and office space, is located in Rochester, Mich., a suburb of Detroit. The primary area to be served by the plant, within a 200-mile radius of Detroit, is reported to contain 10% of the population of the United States.

Principal production facility is a high-speed production line capable of 10 million cans per year on a single shift operation. Additional lines are available to handle small production runs and special containers. Robert A. Willihnganz, president, reported that future expansion could increase production capacity to 50 million units a year.

Robert A. Willihnganz

The plant was financed, according to *The Detroit Free Press* (Oct. 31) by a loan of $240,500 from the Federal Small Business Administration, plus another $60,000 gathered by Rochester businessmen. Aerocide Dispensers, Ltd., Toronto, leading Canadian custom filler, is said to have provided an additional $390,000 toward construction of the plant and installation of the filling equipment. Carl Durant, Aerocide president, has been named board chairman of Rochester Aerosols.

A major feature of the plant is a new product development and quality control laboratory, which will set up specifications for all incoming materials and maintain quality control on all finished products.

Mr. Willihnganz is a veteran of 24 years experience in industrial research, manufacturing, chemical products development, and sales. He has recently been a partner in the consulting firm of Deutser & Willihnganz and has served as vice president of ChemCrest Corp., a custom compounder of chemical specialties.

The secretary of the new firm is Gordon B. Morrison. Mr. Morrison is also secretary of Village Acres, Inc., a residential and industrial development near Pontiac, Michigan.

J. Vaughan Blanchard is sales manager. A native of Howell, Mich., he is the former director of aerosol sales for ChemCrest Corp.

Rounding out Rochester's board of directors are Alton J. Deutser, president of ChemCrest Corp.; Kenneth G. Mitchell, executive vice-president of Aerocide Dispensers Ltd., and William Mitzelfeld of "Radco," the Rochester Area Development Corp.

Babbitt Names Archambault

Robert N. Archambault has been appointed sales manager of the Charles Antell division of B. T. Babbitt, Inc., New York. He had been regional manager for 11 western states. He came to Antell in 1959 after seven years with the Eversharp Company. Prior to that he had been a salesman for Liggett & Myers.

Archambault attended the University of Bridgeport and received a degree in business administration from Woodbury College, Los Angeles, Calif. A graduate of the Army Officer Candidate School at Fort Riley, Kansas, he served with the Engineer Corps in France, Germany and Italy during World War II.

•

Dutch Co. Completes Move

Aerosol Co., Holland, a leading Dutch custom filler, last month completed removal of its plant, offices, and laboratory to 84 Baron van Nagellstraat, Barneveld, The Netherlands. The new plant, which took more than a year to build, is reportedly one of the largest and most modern in Europe.

The building comprises some 45,000 square feet of space, one major portion of which is devoted to a well-equipped research and quality control laboratory.

•

Andrews Heads Airco Unit

A. M. Andrews, Jr. has been appointed president of Airco Co. International, a division of Air Reduction Co., Inc. He succeeds J. G. Bell, who is retiring. As president, he will be responsible for the sale and distribution of Air Reduction products in more than 65 foreign countries.

A graduate of New York University with a degree in international marketing, Mr. Andrews attended St. Andrew's Prep in Middletown, Del. He has been associated with Airco since 1944. He started in the Export Department of Air Reduction Sales Company and when the department was formed into a separate division in 1945, he was appointed an assistant to the vice-president in charge of sales. Four years later he became sales manager, a position he held until his most recent promotion.

Airco Company International, a division of Air Reduction Company, Inc., is responsible for the overseas marketing of the company's industrial and medical gases, hospital equipment and acetylenic chemicals, with headquarters located at 150 East 42nd Street, New York 17.

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Organize New Insecticide Co.

Monaco Chemical Industries has been organized to specialize in the distribution of heavy industrial chemicals, agricultural chemicals, industrial insecticides and pharmaceutical compounds.

John R. Stoddard

Ernest W. Rivers

Principals of the new firm are John R. Stoddard, formerly vice-president in charge of sales for Prentiss Drug & Chemical Co., Inc., and Ernest W. Rivers, formerly manager of the industrial chemical products department of Stauffer Chemical Company. Offices are at 161 East 42nd Street, New York 17, New York, and the telephone number is OXford 7-6939.

•

Ward Sells Valve Rights

Lawrence Ward, of Portland, Pa., a veteran of 12 years of developmental work in the aerosol valve field, has sold all of his foreign patent rights to Seary, Ltd., Zug, Switzerland. Seary is a patent holding company, of which the chief executive officer is Rolf A. Foss. A number of patents are involved in the transaction, granted in practically all the countries of Europe.

These patents are said to cover a number of important valve developments, including a metered valve which can reportedly be pressure filled at a production rate equal to that of ordinary, non-metered valves.

•

Fritzsche Elects Officers

In the wake of the death of president John Cassullo (see page 92) the board of directors of Fritzsche Brothers, Inc., New York, elected Frederick H. Leonhardt, Jr. president and the following officers: Ellis F. Merkl, executive vice-president & treasurer; Edward E. Langenau, vice-president & technical director; Arthur J. Hemminger, vice-president & secretary; Enest Guenther, senior vice-president; Lidcay Herrera, vice-president; Julius P. Bauer, vice-president; Peter T. Wood, vice-president; and Emil C. D'Andrea, assistant secretary & assistant treasurer.

•

Pennsalt Appoints E. S. Ward

E. Smedley Ward, Jr., has been named New York district manager for the "Isotron" Department of Pennsalt Chemicals Corp., Philadelphia. For the past two years, he has served as sales representative for "Isotron" products in the New York territory. Prior to this, he covered the Ohio territory in the same capacity.

Presently a Commander in the U.S. Naval Reserve, Mr. Ward served in the South Pacific during World War II and again during the Korean conflict. A graduate of Dartmouth College, he joined Pennsalt in 1957 after spending several years with the Gulf Oil Corp. in Philadelphia.

•

IFF's Stokes to Retire

International Flavors & Fragrances, Inc., New York, late last month, announced that Sydney N. Stokes will retire at the end of the year as director of public relations and advertising. However, he will continue to serve the company as a consultant.

Mr. Stokes joined IFF in 1955 after having been associated with Merck & Co. since 1954. As a consultant, he will be working with IFF and other chemical and drug companies in the areas of public relations and advertising.

In announcing the retirement, IFF president C. P. Walker saluted Mr. Stokes for his contributions to the company's progress.

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First "C-318" Product is Test Marketed

CLOSE on the heels of the long-awaited word that the Food and Drug Administration has approved "Freon C-318" for use in foodstuffs, *Aerosol Age* learned that test marketing of products containing the propellant was to begin Nov. 27. Reddi-Wip of Wisconsin, Inc., Milwaukee, will test the new propellant in marketed products.

The propellant had been under study by FDA chemists and toxicologists for nearly two years, and several times during that period the FDA asked for additional data from E. I. du Pont de Nemours & Co., Wilmington, Del., maker of the propellant.

Experiments conducted by DuPont and Air Reduction Co. indicate that a propellant mixture of "Freon C-318" and nitrous oxide should provide whipped creams superior in both appearance and stability to those presently available on the commercial market. One advantage claimed for such mixtures is that they allow the whipped topping to "stand up" longer on both hot and cold desserts without "weeping or drooling".

Mixtures of "Freon" C-318 and nitrous oxide for use in aerosol food packages will be available immediately from Ohio Chemical and Surgical Division of Air Reduction, Inc., under a marketing arrangement worked out some time ago between that company and DuPont's "Freon" Products Division. "Freon" C-318 alone will be available from the DuPont.

Other food specialties which might be adaptable to aerosol packaging now that "Freon" C-318 is approved for use in foodstuffs are such things as salad dressings, dessert toppings, canape spreads, mustard, and foamed butter for use on crumbly muffins and biscuits.

Chemically, "Freon" C-318 is octafluorocyclobutane, a combination of fluorine and carbon which exists as a liquid below 29° F. Above that temperature, it is a colorless, virtually odorless and nontoxic gas which has no adverse effect on foodstuffs.

Roberts Joins Virginia Chemical

The aerosol sales department of Virginia Chemicals & Smelting Co., West Norfolk, Va., recently announced the appointment of Frederick E. Roberts as aerosol sales representative in the Middle Atlantic States. He is a native of Pennsylvania and graduated from Pennsylvania State University with a B.A. degree in Marketing. Prior to joining Virginia Chemicals he was associated with the Royal Lace Paper Division of Standard Packaging, Inc.

Virginia Chemicals & Smelting has been a pioneer in the industrial aerosol field since 1946 and market their full line of top quality products nationally under the trade name "Lethalaire."

•

O'Brien to Bon Ami Post

The Bon Ami Co., New York, has named Donald F. O'Brien to the post of production manager. Prior to joining Bon Ami, he was aerosol director of Funkhouser Chemical Co., and before that was technical director of the Household Products Division of Krylon, Inc. He was also associated with The Colgate-Palmolive Co. as head of the company's aerosol pilot laboratory.

Mr. O'Brien graduated from Rutgers University and is a member of Chemical Specialties Manufacturers Association, Toilet Goods Association and Packaging Institute.

•

ATI Develops Propellant System

A new propellant system claimed to achieve "significant savings in the manufacture of conventional aerosol sprays without loss of quality, safety, and performance," has been announced by Aerosol Techniques, Inc., Bridgeport, Conn. custom filler. Called the "Varisol" the system incorporates non-inflammable, non-toxic diluents with flammable propellants to effect prompt cost savings reported to be in the vicinity of 10% or more.

Although very little further technical information on the system was revealed. ATI president H. R. Shepherd said the system may be used for hair sprays, room deodorants, insecticides, insect colognes, room vaporizers, and other producst where the spray pattern and atomization and degree of wetness or drying time are important.

The "Varisol" system is said to differ from ATI's recently announced "Hydrasol" water-based system, which uses saturated hydrocarbon propellants either alone or in combination with the fluorinated hydrocarbons. This system is reported to have been successfully tested for a similar group of products as those listed for the "Varisol".

•

Jennings Joins John Breck

The appointment of John G. Jennings to the newly-created position of director of market research and new products coordinator, has been announced by John H. Breck, Inc., Springfield, Mass. Prior to joining Breck, he was vice-president for marketing of Noreen, Inc., Denver.

A native of Massachusetts, he is a graduate of Dartmouth College.

Aerosol Research Sues Scovill

Aerosol Research Co., Forest Park, Ill. has sued Scovill Manufacturing Co., New York, for patent infringement of its patent number 2,881,888. In the complaint, Aerosol Research alleges that valves being made by Scovill's A. Schrader Son's Division infringe this particular patent, and that Scovill has copied a number of other features of valve parts made and sold by Aerosol Research. The suit was brought for damages and an injunction. Queried by *Aerosol Age*, A. Schrader Son's Division "declined comment at this time."

Aerosol Equipment Makers Cause "Splash" at PMMI Show

ANYONE WITH doubts about whether the aerosol industry has "come of age" would have been very much reassured by attendance at the Packaging Machinery Manufacturers Institute Show at Detroit's new Cobo Hall Nov. 7-10. The aerosol industry copped a good deal of the attention at the show, with gleaming filling, crimping, and gassing equipment, perhaps stealing some of the thunder from the always well-represented makers of container handling and coding equipment.

Since the show is held every two years, a good deal of effort went into operational displays showing working machinery. Altogether, some 220 technical exhibitors occupied about 100,000 square feet of display space, and the show had been sold out since last May. Something in the vicinity of 20,000 packaging executives and researchers visited the show by the time the doors closed at 2 p.m. on Friday, Nov. 10.

Most of the aerosol displays featured high-speed equipment designed for large volume fillers and marketers. The Karl Kiefer Machine Co., Cincinnati; Consolidated Packaging Machinery Corp., Buffalo, N. Y.; Kartridg-Pak Co., Franklin Park Ill., and Economic Machinery Co., Worcester, Mass. were typical of those companies which went "all out" to attract recruits to aerosol packaging. But an alphabetical summary of aerosol equipment gives a fairer idea of the diversity of the exhibits:

Bell-Mark Corp. — a new bottom coder for imprinting the bottoms of aerosol and similar containers at speeds of up to 650 per minute.

John Burton Machine Corp. — high-speed applicators for affixing DuPont "Vexar" net cushioning to aerosol cans and bottles at speeds of up to 300 per minute. Also shown was a "Cellubander" machine for applying cellulose band seals to aerosol stacking cap-type cans.

Chisholm Ryder Co. of Pa. — both labelers and a new line of filling machines. The "New Way" line of labelers is capable of speeds of up to 500 per minute.

Climax Products Division of Lodge & Shipley — a continuous high-speed uncaser and unscrambling tables adaptable for very high-speed aerosol production lines.

Arthur Colton Co. — the Colton-Hope line of multiple, automatic, volumetric filling machines, with Kinsley timing screws for feeding and timing containers. Star of the exhibit was a 16-station rotary filler (No. 116) with special fill controls and no-drip shutoff for speeds of 110 to 320 per minute.

Consolidated Packaging Machinery Corp. — first public showing of the company's new "Capem" automatic aerosol rotary crimper, capable of speeds of 110 to 120 cans per minute in either 4, 6, or 8 rotary head machine. Also shown was the rotary capper for aerosol and conventional containers.

(*Continued on Page* 116)

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Tube Manifold Names Two

Tube Manifold Corp., North Tonawanda, N. Y., fabricator of aerosol containers, last month announced

Creveling Ireland

four key management changes as part of an overall reorganization plan to increase customer services.

The appointments were:

R. A. Creveling, assistant treasurer since 1959, was named treasurer.

David Ireland, formerly vice-president of the Wolverine Bolt Co., was appointed general sales manager.

Richard Hutt, quality control supervisor, was moved up to become chief engineer.

Chester Haber, general plant foreman, has been promoted to plant superintendent.

•

Wiese Joins Dumas Milner

Eugene E. Wiese has joined the home office staff of Dumas Milner Corp., Jackson, Miss., as director of research and development. He will take over a good part of the responsibilities of researching new products and initiating improvements in the firm's present line.

Dumas Milner is manufacturer and distributor of household products, drug products, and cosmetics. Most of its products are available throughout the United States and the free world, including its "Pine-Sol" and "Perma Starch."

Prior to joining the Milner firm, Mr. Wiese was with Dow Chemical Company's specialty chemical sales department in Midland, Mich. A graduate of the University of Houston, he received a masters degree in bacteriology from the University of Texas. From 1951 to 1955, he taught bacteriology at Mississippi State University, Starkville. During World War II, he served in the Navy as a Lieutenant JG with service aboard the USS Nevada and USS Mississippi.

•

Root Addresses College Group

Growing interest in the aerosol industry at the student level was noted by Morris J. Root, technical director of G. Barr & Co., Chicago custom aerosol producer, who addressed a meeting at Roosevelt University, Chicago, recently. Speaking before the new Roosevelt University chapter of the American Chemical Society on the topic of "Pushbutton Living," Root discoursed on the inventions which made the aerosol age possible and discussed the future of aerosols. He noted that four of the largest chemical firms in the nation now are producing propellants. "I was particularly pleased with the interested response of the students and their intelligent questions," Root concluded.

Schrader Upgrades Hecken

Appointment of Harold P. Hecken as assistant manager of aerosol sales has been announced by A. Schrader's Son, Division of Scovill Manufacturing Co., New York, as part of a continuing expansion of its aerosol customer services program. He will assist Gerry Torgerson, aerosol sales manager, at all levels of trade contact, with particular attention to aerosol accounts in the Midwest area. He formerly was the company's special representative in the Midwest for the Aerosol Division.

Mr. Hecken has 11 years of experience with Schrader in a number of technical and sales positions. He was graduated from Cornell University with a bachelor's degree in mechanical engineering and served in the Korean conflict as a company commander in the U.S. Eighth Army. He resides in Oak Park, Ill.

A. Schrader's Son, founded in 1844 and pioneer in the design and manufacture of the modern tire valve, produces a toggle-action aerosol valve. Its headquarters and main plant are at 470 Vanderbilt Ave., Brooklyn.

Commercial Finance Group Honors V.C.A.

Philip H. Sagarin (center), president of publicly owned Valve Corp. of America, Bridgeport, accepts award at recent 17th annual Convention of the Commercial Finance Industry, held at the Waldorf Astoria Hotel, New York. The award was made in recognition of VCA's outstanding business growth and achievement as a leading manufacturer of aerosol valves and components. Mr. Sagarin is shown here with Thomas Lefforge (left), president of the Commercial Discount Corp., Chicago, and J. Martin Seiler (right), executive vice president of the A. J. Armstrong Co., New York. Messrs. Lefforge and Seiler represented the National Commercial Finance Conference, a national business financing organization and sponsor of the award. The presentation to Mr. Sagarin was one of three made at the convention. This was the first award made by the CFI Convention to a member of the aerosol industry. It marks the growth of VCA from its founding in 1953 to its present position as one of the nation's leading aerosol valve manufacturers. VCA sales for the last fiscal year totaled $3.5 million.

Cont. Chemical Moves

Continental Chemical Co., Paterson, N. J., manufacturer of surface active agents and chemical specialties is celebrating its 20th anniversary with a sizable expansion and has acquired a new plant at 270 Clifton Blvd., Clifton, N. J. Plant and tank storage of raw materials and finished products is planned in a volume of 50-75,000 gallons when the entire installation is completed. Although the entire building is on one level, manufacturing sections are up to three floors in height to provide for gravity feed operations. A six car railroad siding has been provided to facilitate bulk shipment of finished products as well as receiving raw materials.

Continental manufactures and markets a broad range of surface active agents including alkyl aryl sulfonates, alkanolamides, alkyl sulfates, emulsifiers and wetting agents, auxiliaries and specialties which are widely used in the soap, cosmetic, sanitary supply, dye stuff, oil drilling and mining industries; nationally and internationally. The company expects to be in its new quarters by Dec. 1.

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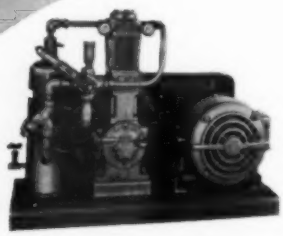

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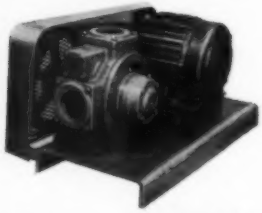

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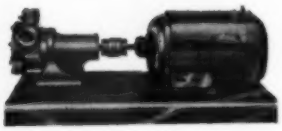

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equipment processes bulletins

Introduce New Aluminum Unit

A new one-piece aluminum aerosol container with fluted sides has been introduced by Bombrini Parodi-

Delfino, 31 Via Lombardia, Rome, leading Italian fabricator of aerosol containers. To be used first for the "Delfix" brand of hair sprays, the new container was unveiled first at the International Aerosol Congress held in Lucerne in October.

•

Introduce New Citrus Oil Line

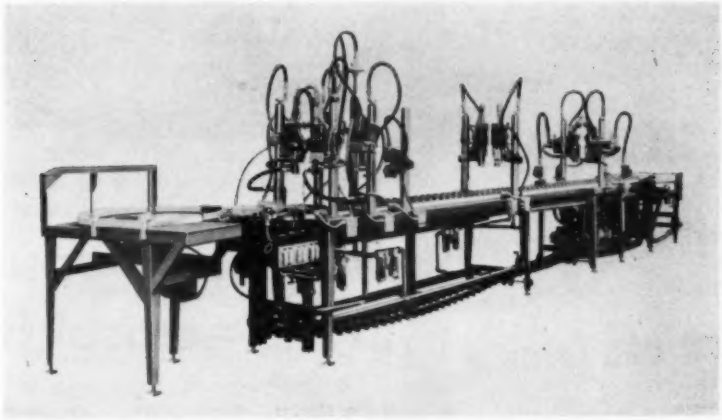
A new line of lemon and orange oils for perfuming and flavoring has been introduced by two major essential oils suppliers in the wake of resignations by both as distributor of a major California producer. The new line, to be carried under the label "Citrus Valley Brand," will be carried by Dodge & Olcott, Inc., New York, and Fritzsche Brothers, Inc., New York and will include both Oil Lemon USP and Oil Orange USP.

•

Risdon Offers New Catalog

A new catalog and price schedule, dated November 1, has been issued by The Risdon Manufacturing Co., Naugatuck, Conn. It includes separate pages and price schedules for metering, and non-metering valves, plastic toggle-action and vertical action actuators, special application actuators, and protective caps. Also included are price schedules for purse-size perfume dispensers, cologne dispensers, and an explanation of available dip tube lengths.

New Production Line Unveiled by Aerosol Machinery



A new automatic aerosol production line, featuring in-line equipment and capable of speeds of up to 90 cans per minute, has just been announced by Aerosol Machinery Co., 30 Magnolia Ave., Westbury, L. I., N. Y. The "AMCO" line is operated by a single master control panel which automatically directs the entire sequence of operation. The cans are fed, cleaned, filled, purged, crimped, injected with propellant, check-weighed and coded, all under the control of the master panel. A special multi-station adjustable cam timer controls the sequence of each production operation, and a hydraulic positive indexing mechanism drives the entire line.

The line may be ordered in individual units and may be added to later for increased production. Contact surfaces are of stainless steel, with easily adjustable spring-loaded heads, each with a safety switch and no repeat action. A bulletin on the line, 961, is available directly from the company.

•

Particle Recording Camera

Royco Instruments, Inc., 440 Olive Street, Palo Alto, Calif., has introduced a new Airborne-Particle Recording Camera, a fast-operating, portable unit which produces finished photographic records of particulate distribution and concentration 10 seconds after drawing of a sample. The operator draws a sample of air into the examination chamber, using a built-in injector. The optical system is pre-focused on a cross-section of the chamber, and particles in this volume are illuminated by the built-in flash unit. Either photographic prints, for size analysis by standard grid, or slide transparencies can be made from Polaroid type film.

Sensitivity of particulate records made in this manner is said to be such that particles one micron in size and larger can be studied.

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The Chemical Specialties Manufacturers Association is an active organization of people and companies with the same business interests and objectives as you. It is dedicated to producing better products, expanded markets and improved selling methods for aerosols in all fields including:

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- **Foods**
- **Insecticides**
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Scientific Research. The CSMA actually establishes laboratory methods for testing.

Legislative Help. Of utmost importance today, the CSMA alerts its members to pending legislation that may affect them. They also work closely with the Federal and State governments on standard specifications . . . labeling . . . and the development of model bills.

Market Help. The CSMA keeps its members abreast of the markets and its trends through an annual survey of production in each of its six divisions.

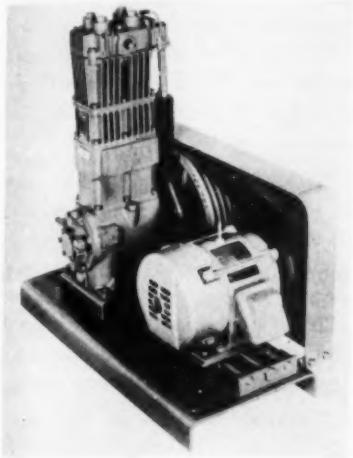
Why not join forces with those whose objectives parallel your own? For more information about the CSMA and how you can join, write: Chemical Specialties Manufacturers Association, 50 East 41st Street, New York 17, N. Y.

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION, INC.

AEROSOL DIVISION

Offer New Compressor Models

Four new models of contamination-free compressors have been announced by Corken's, Inc., of



Oklahoma City. The new "D" style is suitable for handling products in the food-processing and chemical industries, where purity is essential.

Still available, also, are previous models of the Corken "dry-cylinder compressor" which eliminate contamination by crankcase oil, to an extent adequate for most industrial uses.

The new "D" style introduces an additional packing chamber between crankcase and compression cylinder. Capacities range from 3 to 34 CFM. with pressures up to 500 PSIG.

•

CSMA Publishes Proceedings

Over 50 technical papers covering subjects ranging from pest control in Russia to the use of silicone rubber as thermal coatings for missiles are contained in the Proceedings of the 47th mid-year meeting of the Chemical Specialties Manufacturers Association, just published. CSMA's 47th mid-year meeting was held in Chicago last May (1961). Other subjects covered in the 221-page volume include aerosols, disinfectants and sanitizers, waxes and floor finishes, automotive chemicals, and detergent and cleaning compounds.

The heavily illustrated volume also includes speeches given before the association's general sessions by leading business and industry leaders, and reports of special award ceremonies and citations presented to CSMA members for outstanding achievements.

The cost of the volume is $7.50 postpaid in the United States and Canada, and $8. per copy postpaid to other countries. Orders should be addressed to the Secretary, Chemical Specialties Manufacturers Association, Inc., 50 East 41st Street, New York 17, New York.

•

Develop New Parting Agent

A new type silicone parting agent said to combine high release efficiency with a high degree of compatibility for paints, finish coats, and adhesives has been developed by Dow Corning Corp. Now commercially available, the new silicone release material may be obtained in two forms, "Dow Corning 230 Fluid," or its water-dilutable dispersion, "Dow Corning 231 Emulsion."

The company reports that results of extensive laboratory and field testing programs have established:

(1) that this new silicone product gives clean, easy release of rubber and plastic parts;

(2) that no unusual cleaning operations are required prior to painting, bonding, or coating parts released from molds or patterns coated with the new silicone release agent. The same is true for other surfaces with which the molded parts may come in contact.

The 230 Fluid and 231 Emulsion are now in use as release agents for industrial rubber parts and plastic laminates, and as automotive rubber lubricants. The characteristics of the new silicone products also suggest their potential value as additives for plastics, plastisols, urethanes and rubbers; and as base ingredients for car and furniture polishes.

In most release applications, Dow Corning 230 Fluid is applied by spray or brush after solvent dilution. In general, dilutions of one part 230 Fluid in fifty to two hundred parts solvent are most effective. Suitable solvents include aliphatic, aromatic or chlorinated solvents.

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Introduce New Leak Detector

Gelman Instrument Co., Chelsea, Mich., has just introduced a new "instant reading" Leak Detector-

Analyzer which employs a sensitive infrared absorption gas analyzer with variable pumping speed and probe tube. Nitrous oxide is used as a tracer for determinations and has the advantage of being noncorrosive, nonexplosive, and nontoxic.

Gelman Instruments reports the new instrument may be used for ultrasensitive leak detection, industrial safety determinations, gas line sampling, storage tank sampling, and air pollution studies. It is said that reliable accuracy is achieved through precise electronic measurement of infrared absorption by nitrous oxide in a sampling tube. The use of a gold leaf diaphragm and radio frequency measurement circuit is reported to provide virtually noiseless operation.

•

D&O Issues Price List

Dodge & Olcott, Inc., 75 Ninth Ave., New York 11, has issued a new price catalog dated October 1961. The 36-page booklet contains complete price lists for essential oils, floral absolutes, oleoresins, terpeneless oils, animal fixatives, tinctures, aromatic chemicals, and other aromatic specialties. A copy of the catalogue may be obtained by writing direct.

Offers Contract Packagers List

The fourth edition of the "Directory of Contract Packagers and Their Facilities", an exclusive publication of the Packaging Institute, has been released to P. I. corporate members. The Directory is a compilation of the results of a questionnaire sent to contract packagers to establish areas of specialization.

Since the 1955 edition, the scope of the Directory has increased considerably. The earlier publication included information on 284 packagers; the new edition contains 593 listings with companies in the United States, Canada, Mexico, Australia, England, Japan, Germany and Sweden.

Corporate members of the Packaging Institute are distinguished by yellow pages in the Directory. In this edition, two types of listings are used; Corporate Members and other subscribers are represented with complete data on individual pages. The information given includes types of packaging done, facilities available, acceptable products, machinery in stock and quality control features. Condensed listings of identifying information on other contract packages have also been included.

It is available at five dollars per copy through the Packaging Institute offices, 342 Madison Ave., New York 17, N. Y.

•

Offer New Flow Inducer

A new Flow Inducer which works by a series of rollers has been introduced by the Schuco Scientific Division of Schueler & Co., 75 Cliff Street, New York 38, N. Y. Since none of the material comes in contact with the pumps and rollers, it may be used for handling dangerous or corrosive chemicals as well as pharmaceutical products which require sterilization.

The company reports that a wide range of flow rates is available in any one unit by altering the tubing size and/or using the adjustable speed control. The unit will move slurries or dry materials as well as liquids and viscous materials.

New Corrosion Inhibitor

A new corrosion inhibitor designed for use in aqueous aerosol systems has just been announced by Wasco Laboratories, Box 11, Vernon, N.J. Called "Korex C," it is said to be effective both at acid or alkaline pH and to be especially effective in preventing corrosion in systems containing salt.

Essentially water soluble, the material is reported to provide "adequate solubility in alcohol systems to usually give protection against corrosion." It prevents discoloration due to reduction and oxidation processes in tinplate containers. Quantity necessary to accomplish complete inhibition is said to vary from system to system, but field tests show that 0.1% is "usually sufficient in protecting most products for long shelf-life."

•

Hoechst Issues New Booklet

A 130-page manual dealing with aerosol propellants has been issued by Farbwerke Hoechst A.G., Frankfurt/M., Germany, producer of the "Frigen" line of fluorinated hydrocarbons. The booklet has separate chapters on general properties, manufacturing processes, reaction to water, electrical properties, reaction to metals, and other thermodynamic considerations. Also included is an appendix with safety recommendations, compressed gas regulations, plus vapor table diagrams and refrigeration data.

•

Step Up Resin Production

Greater use of polyvinyl acetate resin as a base for aerosol hair spray formulations may be indicated with the recent announcement by National Starch and Chemical Corp., New York, that construction of a commercial-scale facility for producing its "Resyn 28-1310" is near completion.

The multi-million pound capacity of the new plant is aimed at increasing commercial utilization of the resin, a polyvinyl acetate copolymer used as a hair spray preparation base since its pilot plant introduction two years ago. It is currently produced on a semi-commercial basis at the company's Plainfield, N. J., plant.

The new facilities under construction at Meredosia, Ill.—site of National's vinyl acetate polymerization plant—will be in full operation before January 1, according to A. G. Battaglia, Manager of the Resin Division.

•

DuPont of Canada Ups Line

DuPont of Canada is now producing "Freon 114" and "Freon 113" at its fluorinated bydrocarbon plant at Maitland, Ontario. The two new propellants and refrigerants are an addition to DuPont of Canada's present line of "Freon" 11, 12, and 22.

•

Bale Heads Beecham Products

Maurice E. Bale has been elected chairman of Beecham Products, Inc., Clifton, N.J., U.S. subsidiary of the Beecham Group, Ltd., British maker of toiletries and food products. Beecham is the marketer of "Brylcream," which is currently being test-marketed in an aerosol package, and other nationally-distributed products. Mr. Bale, formerly president, was also named vice-chairman and director of the new Beecham Toiletries Division, Ltd., the group's world-wide merchandising unit.

•

New England SCC Elects Reavey

Richard P. Reavey, of John H. Breck, Inc., Springfield, Mass., has been elected chairman-elect of the New England Chapter of the Society of Cosmetic Chemists. News of the election came during the installation of Robert Swaine, of Arthur D. Little, Inc. as chairman for the year 1962. Mr. Reavey, who previously served as chairman of the chapter's Legislative Committee and most recently as chairman of its Publicity Committee, will serve as chairman of the Program Committee.

Other officers elected for 1962 are William Thalheimer, Atlas Chemical Industries, Inc. to secretary; and Myron Slotsky, Gillette Safety Razor Co., treasurer.

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from the Editor's Mailbag . . .

To the Editor:

I was very interested in the article on aerosol shave creams by Phillis Carter and H. M. Truax in your August issue. As an experiment, the work was most impressive, but I was dismayed to read that the shaving properties, such as blade lubrication, effect on face, etc., were "also mentioned as important." The possibility of evaluating these properties was dismissed rather readily.

I do not wish to decry the value of the article, which will be of great use to formulators. However, it is my opinion that the very first consideration should be the performance of the product in the job it is supposed to do. There is not yet any sign of an aerosol shave foam that will shave as well as a first class shaving stick. So long as the emphasis of formulation work is placed on the production of beautiful foams that spread well, etc., etc. little progress will be made in producing good *shaving* foams.

The main difficulty of assessing these preparations lies in the greater variability of the results caused by personal factors. However, the type of approach indicated by Phillis Carter and H. M. Truax, if applied to this more important aspect would enable the formulator to make real progress.

E. K. Clarke, D.Sc.
Ashford, Middlesex, England

We would agree with Mr. Clarke that much more work needs to be done on evaluating the performance of all types of aerosol products, rather than merely the formulations.—The Editor.

•

To the Editor:

We are considering production of an aerosol air freshener, and would appreciate reprints of three articles by Montford A. Johnsen on this subject. I believe these articles appeared in your Oct., Nov., and Dec. 1960 issues.

R. D. Spicer, Jr.
PROFESSIONAL PRODUCTS COMPANY
San Diego, Calif.

This is one of a score of such requests received by this magazine during the past two months. Readers wishing reprints of these articles are advised to request them directly of the author at Peterson Filling & Packing Co., Hegeler Lane, Danville, Ill. —The Editor.

•

To the Editor:

In your July, 1961 issue (page 60) is an item titled "Finnish Aerosols on Rise," which requires some correction. This story carried a sentence which read: "Insecticides continued to dominate the various product types with 272,000 produced last year." This figure, which was also incorrect in a recent issue of the Federation of European Aerosol Association's *Bulletin*, should have read 1,272,000.

Yrjo K. K. Talvitie
President
FINNISH AEROSOL ASSOCIATION
Helsinki

We apologize for this error, which is traceable to the fact that the Aerosol Age story was picked up from the Bulletin story. —The Editor.

•

To the Editor:

It pleases me to inform you that our company has decided to expand its activities into the aerosol field, and industry which, although just starting in Chile, al-

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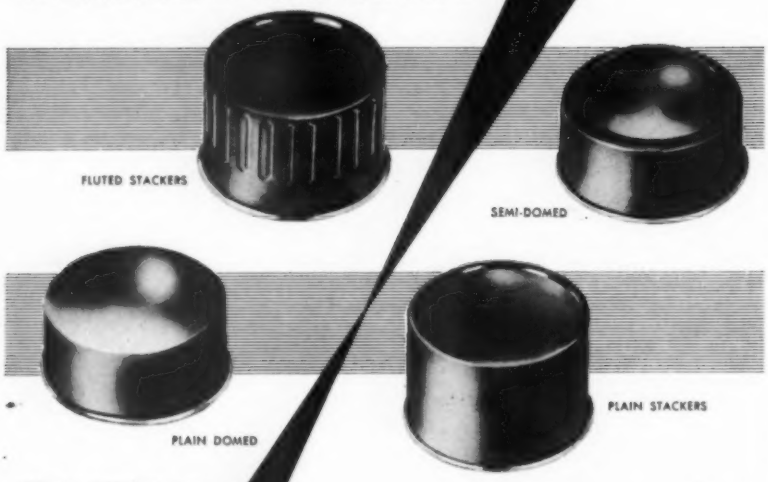

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ready shows great promise. We have already taken steps to obtain equipment and components and would like to contact, through your editorial pages, manufacturers of containers, valves and such products as cosmetics, insecticides, paints, household products, etc., to discuss the possibility of licensing arrangements with important mutual benefits.

Duties for containers and valves are quite high here and thus our primary interest is to consider local manufacture of these items Anything you can do to inform your readers of this request will be appreciated.

Dr. Arnaldo Croxatto
SOC. INDUSTRIAL DE COLORANTES S.A.
General Manager
Casilla 607
Santiago, Chile

•

To the Editor:

I have a complaint about the accuracy of some of the information published in the October article by Peter W. Sherwood on "Aluminum Cans for Tomorrow's Aerosols." Not only is some of the information on prices, weight, availability, etc., incorrect (for example, the Bradley Sun "Mira-Spra" container uses one ounce of aluminum versus three of tinplate), but more important is his statement concerning current I.C.C. regulations. This information is completely incorrect.

I refer specifically to the paragraph on page 141 which reads as follows: "Current Inter-State Commerce Commission regulations limit the use of aluminum aerosol dispensers to a maximum pressure of 40 psi . . .". Current I.C.C. regulations concerning the use of aluminum aerosol containers are identical to those covering tinplate containers, specifically in the field of use under discussion by Mr. Sherwood. The I.C.C. groups all metal containers, ferrous and non-ferrous and merely states that certain test requirements be met, which requirements are the same for aluminum and tinplate.

Richard H. McCarthy, Jr.
Vice-President
BRADLEY-SUN DIVISION
American Can Co.
Union, N. J.

Aerosol Age and Mr. Sherwood stand corrected on this, which is in part due to a lack of published articles by aluminum can makers.—*The Editor*

•

Offer Propellant Booklet

Ohio Chemical has just released a new six page bulletin on its new foam-propellant "Nitrous C-318." This new pressure producing agent is a blend of two liquefied gases, nitrous oxide and Dupont's "Freon" C-318. The bulletin itemizes the consumer and producer benefits and includes the physical properties as well as tables indicating the stability and over-run of the propellant blend.

A brief description is included of the company's technical assistance services which include laboratory formulation and equipment planning. For a copy of this new bulletin write directly to the company, 1400 E. Washington Ave., Madison, Wis. and request Bulletin No. 2452.

PMMI Elects '62 Slate of Officers

THE PACKAGING Machinery Manufacturers Institute elected a new slate of officers at its 29th annual meeting at The Homestead at Hot Springs, Va., from Sept. 13-16.

Elected as 1962 officers were: president, William R. Huguenin, Division Manager, Packaging Machinery Division, Food Machinery Corp.; first vice-president, Harold Mosedale, Jr., vice president-sales, Package Machinery Co.; second vice-president, Henry Brezinski, president, Roto Bag Machine Corp.; third vice-president, Eugene Lakso, president, The Lakso Co., Inc.; and executive director, secretary and treasurer, Russell L. Sears. Mr. Lakso will also serve as chairman of the association's 1963 PMMI Show which will be held in the Atlantic City Auditorium from Oct. 1-4, 1963.

Newly elected to the board of directors for 1962 were: Ira Gottscho, president of Adolph Gottscho, Inc.; Boyd H. Redner, Sr., president of Battle Creek Packaging Machines, Inc.; and James C. Hart, president of Clark-Aiken Co. W. W. Anthony, vice-president of Crompton and Knowles Packaging Corp., was re-elected to the board. Kenneth B. Hollidge, executive vice president of Arthur Colton Co., the retiring 1961 PMMI president, becomes a member of the board.

Gel-o-sols *from piston containers?*

Is this on the horizon? It can be done. The new piston containers will dispense extremely viscous substances — many that may well be considered gels — so we named them "Gel-o-sols." Many new products may be dispensed in this fashion — toothpaste, shampoo, hand lotion; any type of cream or emulsion, water in oil or oil in water. We think this system of dispensing has a lot of merit and will make possible a new family of Gel-o-sols.

Economics are not unfavorable when you consider the propellant savings and the elimination of the possibility of mis-use. The unit will work in any position and is quite positive. Corrosion characteristics are ideal for most of the cream type products since aluminum has been in wide usage in tubes for many years. In consideration of the above, Western Filling has set up the necessary equipment to fill these containers. We invite your inquiries.

An apology in advance to tube manufacturers. We feel a new market will be created rather than elimination of the tube business.

You've probably heard of us. Western Filling. We're at 6423 Bandini Blvd., Los Angeles 22, Calif. Phone No. is RA 3-9177. We solve problems and we're real friendly.

New Piston Can Line Installed by N. J. Filler

EXPRESSING high confidence in the future of the free-piston aluminum aerosol container, a N. J. filling company is preparing to go into full-scale production filling operations at speeds of up to 120 per minute. Diamond Chemical Co., Glen Gardiner, N. J., last month announced plans to install a high-speed gasser that could handle the piston can at these speeds. The installation is expected to be completed within three to five months.

Diamond has just been licensed by the Bradley-Sun Division of American Can Co., New York, to fill the "MiraFlo" piston can. Currently Diamond is set up to operate at speeds of 45 cans per minute, using semi-automatic operation.

George B. Diamond, president of the company, was interviewed last month by *Aerosol Age*. He expressed confidence in the future of the can for three product areas: pharmaceuticals, cosmetics, and food and toiletry products including many which were previously not even considered for the pressure can. In the latter category he suggested toothpastes, pointing out that the piston can is ideally suited to dispense most toothpaste formulations without reformulation. "This significant advantage, coupled with the high degree of evacuation provided by the new piston can," he suggested, "will in my opinion cause a revival of interest by toothpaste marketers in the aerosol can."

Mr. Diamond reported new interest in the can by food and pharmaceutical marketers. "Several major food marketers are shelf testing the can for important food products," he said. However, "pinned down" for an opinion on which product type he thought would be *most* adaptable to the free-piston can, he mentioned "pharmaceuticals" without hesitation. Pointing out that through an affiliate company (Electro-Organic Corp., a basic manufacturer of pharmaceutical intermediates) Diamond Chemical had obtained a good background in pharmaceutical product handling, Mr. Diamond said that all types of pharmaceuticals, ranging from ointments to syrups, could be satisfactorily packaged in the piston can. ★

•

Detz Joins Ungerer

Rudolf R. Detz has joined the staff of Ungerer & Co., New York. He was born in Holland where he received a great deal of training in our industry and for the past five years has been associated with another essential oil firm in the United States. He has been assigned to the Metropolitan Area.

Mr. Detz has completed several courses in perfume, flavor, essential oils and aromatics at Rutgers University.

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Olin Mathieson Opens New Pesticide Laboratory

A new research facility for the study and development of new insecticides, herbicides, and other agricultural chemicals was formally opened at New Brunswick, N. J. recently by Olin Mathieson Chemical Corp., New York. The laboratory is adjacent to The Squibb Institute for Medical Research, a consolidated research facility of Olin Mathieson.

With the formal opening of the laboratory Olin Mathieson announced two new pesticide developments. (1) Apholate, a compound which causes sterility in houseflies which eat it or walk over a treated surface. Target date for commercial introduction of this chemical has been tentatively set for 1964. (2) Omaflora, a pineapple growth regulator which speeds up the flowering of the pineapple plant to provide a uniform harvest in individual fields.

Among the numerous unique features of the new laboratory are four specially designed, windowless growing rooms in which scientists, experimenting with plants and organisms, can control light intensity and duration, temperature and relative humidity. According to Dr. Sylvan Cohen, manager of the agricultural chemicals research laboratory, these growing rooms produce more consistent test results than are obtainable in a greenhouse environment, which is affected by changes in weather.

Other equipment includes a 100% humidity room (where plants inoculated with fungi are placed for an incubation period), a "cold room" for insect studies, precision spraying, water and soil preparation facilities, chemical laboratories and offices. The new research laboratory is an outgrowth of the company's pesticides research operation previously located at Port Jefferson Station, N. Y.

Wheaton Shifts Leonard

T. C. Wheaton Co., Millville, N. J., last month transferred Thomas G. Leonard from its Chicago office to Shakopee, Minnesota. Jack Thownsend will succeed him in the Chicago office. Wheaton is the parent company of Wheaton Plasti-Kote Corp.

Metered Valves

(*From Page* 36)

prime consideration, especially for foods. On other products, the higher cost of a metering valve may be offset by the savings in the cost of liquefied propellants presently used. In the average product the propellant comprises 50% of the total contents, and after it has served its dispensing purpose, it disappears into thin air. This propellant is costly compared to the use of immiscible gases. With this in mind, many months of engineering have gone into the design and construction of the IG valve so that it can be produced economically on an automatic basis. As soon as the use of this valve approaches the volume which would warrant manufacturing on an automatic basis, its cost will be substantially reduced. In any event, it is expected that any small differential in price between it and the non-metered valve can be more than offset by the advantages as stated above. Farsighted marketers can now plan a better consumer package at less cost. At present, the IG valve is priced slightly higher than standard metering valves of equal size.

To date it has been possible to dispense metered doses as small as 50mg and as large as 7cc with the use of immiscible gases. There is no indication that there will be any limitations as to the size of the dose. Limitations will depend on the size of the container, whether the conventional one-inch opening is used or whether the product is packaged in a glass bottle. The IG valve is presently made to fit a glass bottle

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with a 20mm opening and a standard one opening container.

The valve has proven accurate on products on which it has thus far been tested. The normal tendency is for the metered dose to be reduced slightly as the package is emptied. However, the drop in dose is well within accepted industry tolerances for food, personal and general household products. In pharmaceutical products, where the consistency of the dose is more important, the variables depend on the size of the dose, viscosity of the material, and the amount of internal pressure and the actuator, all of which can be integrated to produce a satisfactory package.

Since the filing of the original patent applications on this valve, an improvement has been added to permit the dispensing of small doses in the form of a spray—an especially important feature in the pharmaceutical field for nasal and oral sprays as well as topical applications.

The product research man familiar with aerosols will recognize the advantage of using immiscible gases wherever possible, since they lessen product formulation problems and permit pressure packaging of products which have already been successfully marketed in less convenient type packages. This type of dispensing obviously can mean saving of time and money for his company. The following are a partial list of products presently marketed in aerosol form which should also be considered for "controlled" packaging using the immiscible gases. They are:

Residual insecticide, plant sprays, glass cleaners, shoe and leather preparations, waxes and polishes, starches, metal cleaners.

Personal Products — hair sprays and dressings, dental creams, antiperspirants.

Pharmaceuticals—both ethical and over-the-counter for treatment of fungi, burns, and skin infections. Also antiseptics, oral sprays, antibiotics. Also such new products for nasal, eye, ear, vaginal and rectal use.

Veterinary Products—such as mastitis, anthrax, vitamins, and eye sprays are a natural because of the difficulty in administering medication to animals.

Food Products are too numerous to list. However, it should be noted that present thinking in terms of the coming Space Age and "protection against radiation," the problem of packaging and dispensing food could very well be solved by the use of nitrogen-pressurized food packages equipped with metered valves so that highy concentrated foods could be dispensed in required amounts with complete safety.

Some additional information regarding the operation and construction of the valve is as follows:

(1) The liquid product is pumped by compressed gas into a sealed tank which is part of the valve (the tank has a gas at 0 psig—14.7 psia).

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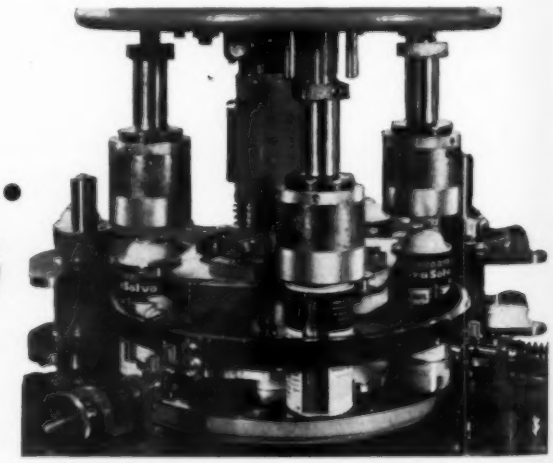

A recent customer reports the new CAPEM Automatic Rotary Crimper for Aerosol Valves delivers more than a million cans without a sign of jaw or plunger wear or misalignment. The crimper assembly holds well within crimping tolerance throughout the entire run.

The machine features a completely mechanical operation . . . no *air* required. During the crimping operation, a mechanical plunger drops over the valve and expands 6 precision tooled segments for crimping contact. When the plunger retracts, the segments snap back into position for positive release of the can *before top pressure is released.* The crimping operation is further protected by Consolidated's built-in accuracy of container handling and centering, with automatic pre-seating of unseated valves.

Crimper jaws are adjustable to provide depth of crimp desired. The machine, with adjustable turret, can be easily set for proper crimp height and top pressure.

The Model C-4-SC, 4-spindle operation shown, will handle any size can with standard 1" valve at speeds of 110 to 120 containers a minute. Faster six and eight spindle machines are available.

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(2) The gas in the tank is trapped and cannot escape, the rising liquid causes compression of the gas until equilibrium is reached with the pumping pressure in the container which initially would range from 100-125 psig.

(3) Operation of the valve stem downward causes a sealing of the tank inlet orifice. After the inlet orifice is closed the outlet orifice is opened and the pressure in the tank expels the liquid.

(4) Releasing the valve stem closes the outlet orifice and opens the tank inlet orifice.

(5) The pressure in the container then pumps fresh liquid into repeating the above cycle.

(6) The fact that there are very few moving parts in the valve assures consistent operation and reliability. It also reduces the possibilities of variation from dose to dose or container.

(7) Metering tank is closely controlled. Since the dimensions of the metering tank do not vary from dose to dose, or package to package, it assures greater accuracy. Dose variation depends, to some extent, on the physical characteristics of the product.

(8) The method used in fabricating the valve makes it possible to prepare and use metering tanks made from various plastics or metals. Due to the large variety of products which can utilize a metering valve, this feature has further advantages.

(9) Valve can be used either as a metering valve or as a *control valve* to prevent accidental discharge of compressed gas. It should be noted that the container and its contents are sealed off from the metering tank during actuation and use of the product. This means that the only gas lost during misuse is the relatively small amount trapped in the metering tank. We have had reports of one company using the valve on a 4 oz. glass bottle with 80% fill, being able to misuse the bottle 75 times and still obtain satisfactory evacuation of the container. Using a normal bottle valve, one accidental actuation would be sufficient to make the bottle inoperative. It should also be mentioned that the use of such inert gases as nitrogen preserves most products and eliminates the necessity for refrigeration. ★

CMCS Meeting

(*From Page* 41)

asked.

4. Projective techniques are prohibited.

Mr. Edsall ventured the opinion that such disadvantages are more than offset by two paramount advantages for phone interviews:

1. It affords a truly random sample at less cost than house-to-house interviews, where a great deal of money must be expended before any questions are asked.

2. Responses from people not at home are readily available by re-phoning later.

Some other ways of determining buying patterns and consumer appeal of a particular product, Mr. Edsall said, include the following:

1. *Observation.* He cited Steinberg's in Montreal as an example. Paired stores are used, one selling the new product, the other the old, and sales figures are closely analyzed to determine ups and downs.

2. Continuing Measurement, as practiced by Nielsen. By this method, a continuing measurement is made of how fast brands move, with a close study of the effect of price changes, special deals, etc.

3. Blind tests — The housewife is given two products to use, both in unmarked packages. She is then questioned for her preferences.

4. *Brand and Company Image Analysis.* An attempt is made to determine recognition of the

SCA Promotes E. H. Sellmer

Strong Cobb Arner Inc., custom pharmaceutical manufacturer, last month announced the election of Edward H. Sellmer as vice-president and director of sales. He joined the company in July as assistant vice-president and general sales manager.

Prior to his association with Strong Cobb Arner, Mr. Sellmer was director of sales of Wilson Laboratories, Chicago, subsidiary of Wilson and Co.; previously he was director of sales for Barlow Maney Laboratories of Cedar Rapids, Iowa. He served as a Lt. Commander in the U.S. Naval Reserve from 1942 to 1946. He is a member of the Chicago Drug and Chemical Society, Michigan Chemical Society, LaGrange Country Club, and Mason Consistary & Shrine.

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Ernest Schueler is Dead

Ernest Schueler, founder and board chairman of Schueler & Co. and Schuco Industries, Inc., New York, died last month at the age of 84. His companies have been pioneers in the development of aerosol spray bandages and other pharmaceuticals and hospital products. Coming to this country from Germany, Mr. Schueler founded the company in 1908. He was a world traveler.

PMMI Show

(*From Page 99*)

the rotary capper for aerosol and conventional containers.

E. I. du Pont de Nemours & Co. "Cel-O-Seal" Division — aerosol packages wrapped in and sealed with "Cel-O-Seal" cellulose bands and "Vexar" plastic netting, both designed to make aerosols "tamper-proof."

Economic Machinery Co. — the "OEL" aerosol pressure filler and crimper, with explosion proof-design and automatic dial feed table, in three models, was the featured attraction. These units will handle 3 to 16 ounce cans at speeds of up to 30 per minute.

Ertel Engineering Co. — a straight line bottle filler which operates either by vacuum or gravity.

Filler Machining Co. — the "Geyer" heavy-duty piston filling machine for containers of 4 oz. and up.

Adolph Gottscho, Inc. — the "Rolacoder" series for imprinting the bottoms of aerosol cans.

Horix Manufacturing Co. — a new high-speed filler featuring a new in-motion fill height adjustment.

Island Equipment Corp. — a new rotary unscrambling table, an accumulating table, bottle conveyor, and other container handling equipment.

Kartridg-Pak Co. — the under-the-cap propellant filler incorporated into a very high speed aerosol line. This same unit attracted considerable attention at the National Packaging Exposition last Spring.

Karl Kiefer Machine Co. — the high-speed rotary "Gas Jet" rotary filler and charging unit, together with the "Gas Jet Junior," a small-run model which will charge up to 36 cans per minute. The high-speed line contains a product measuring filter, air purger, and "precise" charger, all rotary units. Also shown were vacuum filling machines and container cleaners.★

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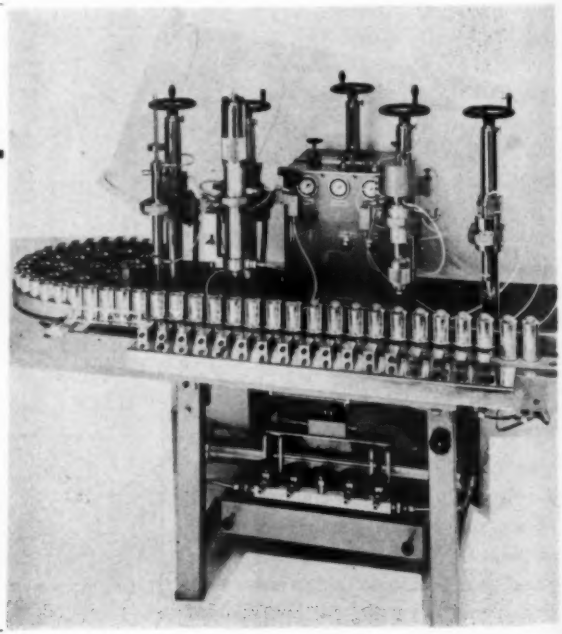

Aerosol speakers at CMCS meeting included (from top) Richard Edsall, Seth Schneible, John Hinn, and Joseph Gregory.

brand or company symbol. Mr. Edsall suggested that much work needs to be done in this area, particularly in the way of determining dealer or retailer recognition of brand and company image.

Relating his survey work to the aerosol market, Mr. Edsall reported that from 1959 to 1961 there was surprisingly little growth in consumer knowledge or purchase of particular products, though there was an increase in general understanding and appreciation of the aerosol package. He said the re-purchase percentage for 16 aerosol products rated above 80%, indicating that the consumer *is* happy with what he is getting.

Consumer education about aerosols is still a major problem in Canada, he declared, since the majority of people questioned did not know about particular product types. For instance, the following percentages of surveyed people in Montreal and Quebec did not know of the existence of these aerosol products:

34%	windshield cleaner
34	shoe shine
33	spray paint
29	rust proofer
24	spray lubricant
21	spray bandage
17	tire inflator
16	burn ointment
18	water repellent

Mr. Edsall reported that predominantly French Montreal showed a greater consumer knowledge of aerosols and a greater repurchase percentage for nearly all products than did predominantly English Toronto. Furthermore French-Canadians queried tended far more often to stress the speed and economy of aerosol packages.

SETH SCHNEIBLE reported that there has been little change in the container picture since 1950, with the exception of improvements in can coating technology and can decoration to include water-based products. He charged that the marketer has placed far too little emphasis on the need for the package to do its own selling job, despite the pronounced trend in retailing toward the self-service outlet.

The industry is in need of better designed labels, and in certain areas, quality products, he concluded.

Misuse as a factor in inactivation of compressed-gas propelled products may have been overemphasized, commented John S. Hinn in a paper on "Nitrous Oxide for Non-Food Products." Hinting that early misadventures with nitrogen (a non soluble propellant) may have misled aerosol packagers, Mr. Hinn declared that a

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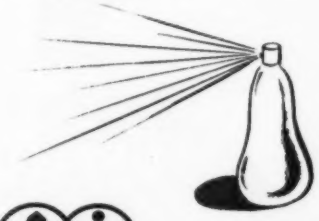

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slightly lower equilibrium pressure in the head space is achieved in the nitrous oxide package very soon after the valve is closed. Agitation will accelerate the achievement of this equilibrium, he reported, since the dissolved nitrous oxide acts as a propellant reserve.

Mr. Hinn declared that "the use of a compressed soluble gas propellant in aerosols must necessarily be limited at this time to those products which are to be dispensed as a foam, an aerated stream, or as a residual spray. . . . When nitrous oxide alone is used as the propellant, no liquefied propellant exists in the container. Therefore, there is little of the gas expansion effect at the actuator which, with such propellants as dichlorodifluoromethane, serves to break up the product into extremely small globules. A mechanical break-up actuator is required with nitrous oxide aerosols to produce a residual spray pattern of the proper character."★

Anti-Resistant DDT

(*From Page* 34)

by the U.S. Dept. of Agriculture for use in residual sprays to aid in control of DDT-resistant houseflies. The registration covers use of the formulation in cattle sheds, hog barns, sewage disposal plants, etc.

In Dec. 1960 a preliminary report on the new material was released to a selected group of entomologists to provide what information was then available. Soon to be released is a second report giving more recent laboratory results and including field test results accumulated during the 1961 season. Most of the test work to date has been against the house fly, but the material is also being evaluated for results against other insect species. Copies of the latest report will shortly be available from Penick and General Chemical.

THE antiresistant material is said to be essentially non-toxic itself on the basis of test work completed to date. Tests of its effectiveness against the house fly have been conducted by a number of laboratories, including those at WARF., Orlando and Beltsville U.S.D.A. laboratories, Orlando, Rutgers University, the research laboratories of Gulf Research, and at the Purina Research Farm, Gray Summit, Mo. These tests have included the Peet-Grady and wind tunnel tests, and evaluation in the Barnhart mist tower. A full account of Peet-Grady studies performed by the USDA at Beltsville by J. H. Fales and O. F. Bodenstein is published in the Nov. 1961 issue of *Soap & Chemical Specialties.*

Field tests were conducted by General Chemical researchers during the 1961 season in the vicinity of Orlando, Fla. where there were fly populations exhibiting a very high degree of resistance to DDT. The general pattern of these test results indicated successful control of these highly resistant flies though there were some less promising results.

In field use in sheds housing beef cattle and hogs, a number of conclusions were reported. Excellent reductions of house fly populations were achieved with Antiresistant DDT when the insecticide was applied at dosages of 175 to 220 mg DDT/ft.^{2} The duration of effectiveness depended largely on thoroughness of application. It is recommended that special attention be paid to overhead locations, and that breeding sites not be sprayed to avoid possible resistance build-up in succeeding generations. It was suggested that good sanitation practices are highly important, and that the effectiveness of the material be judged on the basis of percentage reduction in fly population rather than on the number of dead flies visible.

During the field trials it was observed that in locations of heavy infestation, where fly breeding sites were plentiful, by far the greater number of newly-emerged houseflies frequently had no contact with the insecticide surfaces until dusk, at which time they went into the barn to roost for the night. During warm days early in the trials, therefore,

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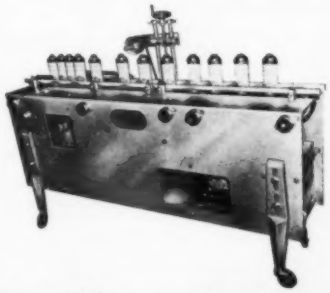

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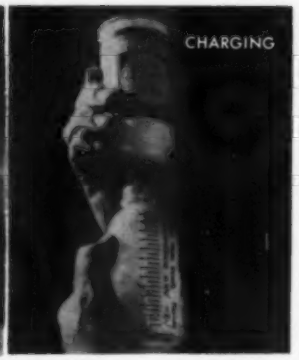

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the newly emerged adult houseflies near untended breeding sites became extremely numerous. Under these unsanitary conditions, desirable control levels were not reached and maintained until the emergence rate had been materially reduced, either through sanitation or through disruption of the breeding cycle caused by the killing of adult houseflies prior to their mating.

On all sites it was reported that control in the range of 90 to 95% was achieved within hours after application of Antiresistant DDT. However, in some trials where adequate sanitation was not maintained fresh populations began to emerge within a few days and a substantial and sharp increase in houseflies (up to 40 to 65% of pre-spray populations) was observed. Thereafter populations fluctuated downward until desirable control levels were reached (80% or more reduction) and maintained for 5 to 8 weeks or longer. Figures 1 and 2 indicate these observations. It was concluded that where recommended sanitation practices were observed, the material gave *good* control of houseflies in a short time and successfully maintained satisfactory control on a residual basis.

In addition to this dramatic improvement in the performance of DDT, the new material is also reported to have improved the performance of methoxychlor, perthane, and TDE, which researchers had anticipated since all three are analogs of DDT. The material also gave improved performance for chlordane against chlordane-resistant German Roaches and was effective against DDT-resistant bedbugs.

In addition to space spray and residual test work with conventional sprays, the antiresistant material has also been tested in low-pressure aerosols. Full details of all the test work will be available in the new Technical Report referred to above.★

References

1. Schmolesky, G. and Derse, P., *Proceedings* No. Central Br. E.S.A., v. 16, pp. 110-111, 1961.
2. Fales, J. H. and Bodenstein, O. F. *Soap and Chemical Specialties*, Nov. 1961, pp. 77 et seq.
3. U.S. Letters Patent 2,974,083, to Mosher Neeman, Mar. 7, 1961, assigned to Wisconsin Alumni Research Foundation.
4. Technical Report N2-E2 (1260), Wisconsin Alumni Research Foundation, 1960.

As additional aerosol formulation data becomes available, it will be published promptly by *Aerosol Age—The Editor.*

Aerosol Publicity

(*From Page* 62)

product types in use, but do not show proprietary labels. Subjects so far this year include spray starch, dessert topping, shoe polish, topical antiseptics, gun lubricant and other aerosols handy for the sportsman. These mats enjoy high percentage pickup and reach millions of consumers each year.

News Fillers

With the Committee's guidance, the agency prepares and distributes to specialized newspaper editors news filler material, usually of a seasonal nature. Topics included in this year's news filler syndications to date include aerosols for hobbies and handicrafts, the 1960 product survey of aerosol production, variety of newly available push-button products, aerosols for car maintenance, and cosmetics and grooming aids for men.

"The Magic Button" Film

This seven-minute color 16mm film, produced several years ago especially for television, has been shown on more than 125 non-competing TV stations, with no charge for telecast time. In March 1961 it was announced that this film would be available at no cost for use by Aerosol Division member companies, and business and civic groups interested in the subject. Since that time six color prints have been kept in circulation to companies and groups requesting the film.

Other Projects

The Market Development and Publicity Committee and its agency have also been active on other projects,

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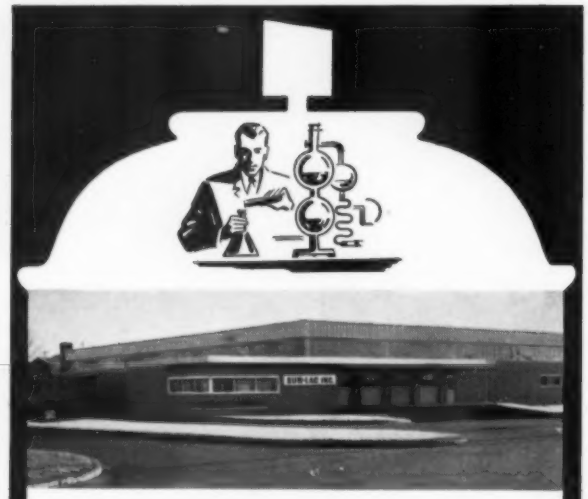

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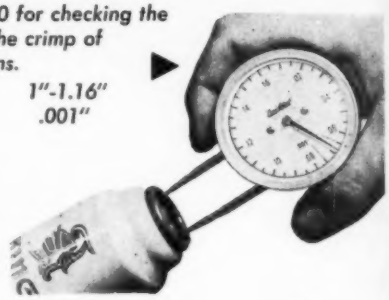

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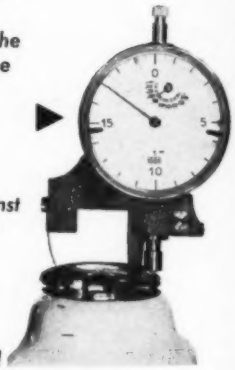
Range 0.60"-.260"
Reading .001"



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not directly aimed at creating published publicity, but closely allied to the same purpose.

A letter in the light vein was recently sent to some 300 newspaper wire service and magazine writers asking their cooperation in limiting, or eliminating, use of the word "bomb" in connection with most of today's aerosol products, for which it is a misnomer. Other follow-up mailings are planned in this campaign to overcome the editorial habit of some writers dating back to the earliest days of the aerosol.

The Committee is currently seeking help of aerosol industry suppliers and fillers in updating the long and growing list of aerosol product types generally available. This roster of current product types is a valuable tool in gaining interest of editors and helping to educate them to the vast variety of items available.

Another project is to get leads from sales representatives of Aerosol Division member companies concerning retailers who are doing an outstanding job of aerosol product display and/or demonstration, so that retailing case history stories and photos can be developed for placement with publications serving hardware, housewares, drug and cosmetic, grocery and supermarket trade publications. Several such stories are now being worked on.

Other innovations, plus a continuation of the publicity techniques that have helped build acceptance and sales for all aerosol packaged products in the past, are expected to add greater and greater impact to the over-all promotion and marketing efforts for aerosol packaging and help to maintain the healthy growth in aerosol sales. ★

Aerosol Valves

(*From Page* 89)

been necessary to incorporate a mechanical break-up device into the spray heads. This design had to be one which could be incorporated into spray heads of the same size as those presently being used, in order to minimize equipment changes. New valve materials for spray heads and valve bodies became a requirement, since it was essential that these materials not absorb moisture and become soft (which would change spray pattern and characteristics). New types of coatings had to be developed to prevent corrosion of mounting cup. Requirements changed for tubing. Small diameter tubing, which would restrict the flow of material, has been used for specific applications; and large diameter tubing, capable of delivering large volumes of heavy materials, has found a use in such products as toothpaste.

With so many new products being actively considered for pressurized packaging, new and greater demands can be expected to be placed on the valve manufacturers. This makes the future of the aerosol industry appear to be one with unlimited opportunity.

What part will the valve manufacturer play in future growth of the industry? Food and pharmaceuticals have yet to be recognized as major factors in the pressurized packaging industry. Limitations on valves and dispensing heads have been such that several products which *should have become leaders* in both the food and drug fields have not yet "arrived". Speaking as a representative of one valve manufacturer, I feel reasonably sure that a closer cooperative program between food and drug industries and the valve manufacturers will result in the solution of many existing problems which are currently restraining progress in these untapped markets. Many new types of valves will have to be designed specifically for both these fields, due to the wide and varying types of application requirements. Specific products will require valves which are suitable for only one purpose. In the food field, where cost is so critical a factor, a valve is needed which will add very little to the cost of the package.

Other fields may place similar demands on valve application. It is dif-

Five Years Ago This Issue

BACK in the days of other international crises (the Hungarian Revolt and the Suez invasion by Britain and France), these items made aerosol news in the December 1956 issue of a young, slim *Aerosol Age* magazine:

1. "Lavender Air Spray by Lactopine", a product of Swiss Pine Importing Co., New York, edged out a field of 200 entries to win the Grand Award in the 1956 Aerosol Package Contest of the CSMA. A French product, "Bib" window cleaner (Societe Elekal, Paris) won the top award in the Household Products category.

2. Among the company's announcing expansions were Newman-Green, Inc., Addison, Ill.; Shield Chemical Co., Needham Heights, Mass.; Stalfort Pressure-Pak, Inc., Baltimore; and Associated Brands, Inc., Brooklyn.

3. Frederick G. Lodes, formerly an officer and director of Precision Valve Corp., established Lodes Aerosol Consultants, Inc., an aerosol consulting firm.

4. Among the major personnel appointments announced that month were those of Dr. Daniel H. Terry, to v-p in charge of research and development of the Bon Ami Co.; Irving Bottner, v-p of Revlon, Inc.; Mary Saunders, to the research staff of Peterson Filling; and William Whitney, to sales manager of Aer-O-Fil Engineering Co.

5. Harry Peterson, president of Peterson Filling & Packaging Corp,. Danville, was a favorite to win the presidency of the CSMA.

ficult to forecast style, design and principle of operation for the valve of the future. The future of the estire aerosol industry depends on its ability to design new types of valves and improve the ones presently in use. These ideas must come from the marketers as well as the valve manufacturers. When there is a necessity, there is usually a development to meet that necessity.

In this brief background history of aerosol valves, it is relatively easy to relate what *has* happened to what *is* happening now. It is much more difficult to predict the future, particularly in such a phenomenal growth industry. The valves of the future will depend on the ideas and developmental work of many people. We in the valve industry consider this a challenge to our abilities. ★

Aerosols in Berlin

(From Page 49)

in lines to see a quarter-hour film on aerosol techniques in a small theater. Much appreciated by exhibitors was a film with colored slides (from Farbwerke Hoechst AG, Frankfurt) titled "The Customer Wants to Know Exactly". Presented to support sales efforts of exhibiting firms, the film attracted viewers from among the retailers, their customers, and the general public. So much interest was expressed, in fact, that before the Fair was concluded special classes for sales clerks and shop owners were held in conjunction with the film. These classes discussed the special attributes of the package, how to apply it properly, how to store it, and some more about how it functions. Hoechst is a leading supplier of fluorinated hydrocarbon aerosol propellant, under the "Frigen" trademark, for the European market.

Observation of these classes seemed to bear out what is reportedly one essential worry about aerosols on the part of the German consumer public: the German people seem somewhat afraid of internally pressurized containers. The Hoechst film was made with a recognition of this fear, explaining that with "safe propellants such as 'Frigen', there is little danger". One sidelight to this: although government regulations do not require it, many labels on aerosol labels sold in Germany carry a statement that it contains a "Fluorinated Hydrocarbon Safe Propellant". This is used to give assurance not only to the consumer, but acts in the same way toward the sales personnel who may or may not recommend such products. ★

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Florasynth Laboratories, Inc., New York producer of essential oils and aromatic chemicals, has announced establishment of a Philadelphia sales office at 1418 Walnut Street, Philadelphia 2, Pa. Phone number of the new office, which is under the direction of district sales manager Frank Carmi, is KIngsley 5-1353.

Pharmaceuticals

(*From Page 70*)

II—*Antibiotic Spray*

Calcium Chlorotetracycline	1.0%
Chlorobutanol, Anhydrous	0.5%
Propellant 114	48.5%
Propellant 12	50.0%

When dispensed, the propellant vaporizes, leaving behind a fine film of antibiotics.

III—*Burn Relief Spray*

Chlorobutanol	0.3%
Menthol	0.1%
Hexachlorophene	0.3%
Isopropanol	12.2%
Dipropylene Glycol	17.1%
Propellants 11/12 (50/50)	70.1%

This dispenses as a fine cooling spray and offers the antiseptic value of chlorobutanol and hexachlorophene.

Medicinal Aerosols

Inhalation therapy may be defined as the administration via the respiratory system of medicinal agents which are in the form of fine solid particles or a liquid mist. This method of administration is not new. The ancients recorded the efficacy of the vapors from burning leaves and herbs; within the past 30 years, the smoke from burning stramonium leaves has been used in the treatment of asthma. In more recent times, physicians have administered penicillin and other antibiotics by way of the respiratory tract. The atomizer, nebulizer, and vaporizer have been successfully used for many years to produce finely divided liquid or solid particles of medicinals for administration by inhalation. However, these were cumbersome to use; they did not always produce the desired particle size, and did not meet with widespread acceptance. The development of self-contained pressurized aerosol units may overcome these difficulties and be readily acceptable to both patient and physician. The widespread use of the several aerosol medicinal products currently available attests to this statement.

It is not the intent of this paper to discuss in detail the physics of inhalation therapy and the structure of the respiratory system. This has been covered by Sciarra and Lynch. It should suffice to state that particles should be in the range of 0.5 to 5 microns in size. Larger particles would deposit on mucosal surfaces and be slowly absorbed, while smaller particles would be expelled. The former would defeat the purpose of inhalation therapy, whereas the latter would result in inadequate dosage.

There are several ways in which a medicinal can be formulated with a liquefied gas to produce an aerosol. If the medicinal is soluble directly in the propellant, a clear solution is produced. When this solution is dispensed from the container, the propellant will vaporize, leaving behind a fine dispersion of the medicinal either as liquid or solid particles, depending upon its physical characteristics. Proper choice of propellant, valve, and actuator will produce the proper sized particles. However, most medicinals are not soluble directly in the

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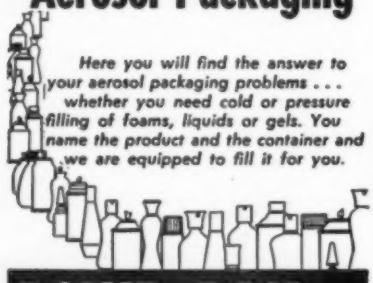

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All we've got to say
is on page 111

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propellant and must be brought into solution by use of a cosolvent. Considering the number of solvents that are miscible with the propellants and yet are safe to use internally, the problem becomes apparent. Very few solvents fall into this category. Ethyl alcohol has been used in a concentration of about 30% as a cosolvent for some medicinal aerosols. The usual advantages and disadvantages of ethyl alcohol are present. Some other solvents that may be useful but have not been fully tested to date are: polyethylene glycol 200 to 400, methoxy polyethylene glycols, polyglycols, dipropylene glycol, and hexylene glycol. The toxicity of these compounds must be considered not only when they are given orally, but by inhalation as well. Unfortunately very little, if any, work has been done to investigate this phase of aerosol formulation.

Water is a good solvent for many medicinals but, unfortunately, water is not miscible with the propellants. However, it may be possible to formulate a three-phase aerosol using suitable baffles to produce desired particle size. Generally, a three-phase aerosol produces "wet" or "large" size particles, which must be further subdivided before they can be used for inhalation therapy. This type of system would overcome many of the problems dealing with the toxicity of the cosolvent and the propellant.

For those medicinals which are insoluble, or can be *made* insoluble in the propellant, a dispersed system aerosol can be used. The powder must be finely subdivided and dispersed throughout the propellant. Suitable dispersing agents are used for this purpose and help to keep the particles in suspension. When the contents are dispensed, the propellant vaporizes, leaving behind the finely subdivided powder, which can then be inhaled. This system overcomes the disadvantages of using ethyl alcohol or other cosolvents in the formulation, but presents the added problem of keeping the suspended particles in dispersion so as to give uniform dosage. This can generally be accomplished by shaking the container prior to use.

Table II shows those preparations available in the United States as aerosol products used for inhalation therapy (Aero-Meter is a local nasal decongestant but is included here since it is similar to the other products in formulation).

Some typical formulations of medicinal aerosols follow:

I.—Angina Spray	
Octyl Nitrite	1%
Propellant 12/114	99%
II.—Asthma Spray	
Isoproternol hydrochloride	0.25%
Ascorbic Acid	0.10%
Ethanol	35.75%
Propellant 12/114	q.s.
III.—Asthma Spray	
Epinephrine	0.25%
Hydrochloric Acid 3N	0.5 %
Ascorbic Acid	0.15%
Water	1.0 %
Ethanol, Absolute	33.10%
Propellant 12	25.0 %
Propellant 114	40.0 %

Future Developments

There is considerable interest at the present time in developing medicinal

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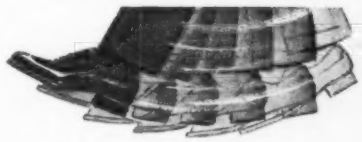

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aerosols containing the following classes of drugs:

I.—*Opthalmic agents* — such as atropine, fluorescein and butacaine.

II.—*Anti nauseant agents* — such as meclizine and cyclizine.

III.—*Cardiotonic agents* — such as various digitalis and digitalis like preparations.

IV.—*Other sympathomimetic agents* — (phenylephrine and naphazoline) and other antiasthmatic agents (aminophylline and antihistaminics).

In addition to improving the existing pharmaceutical aerosol products, current investigations are being carried out in the following areas:

Ear, Nose and Throat Preparations

It is possible that medicaments may be able to penetrate the nasal tract and especially the sinuses more effectively if administered in the form of an aerosol. Products used as antiseptics, astringents, and local anesthetics would be useful in throat therapy. It is possible that aerosol therapy may make possible the local treatment of "otitis media."

Rectal and Vaginal Preparations

An aerosol foam product seems ideally suited for application to the rectum and vaginal tract. Since a foam will expand, it will fill all of the crevices present in these areas and bring the medication in close contact with the desired areas. It may be possible to apply medication "via" this route for systemic absorption.

Dental Preparations

Local anesthetics, mouth washes, breath sweeteners, etc., may be conveniently used in aerosol form.

Veterinary Preparations

This area is worthy of investigation since an aerosol product would offer many advantages. Deeper penetration through the animal fur, quick administration of the medicinal are just a few advantages.

Conclusion

The future for pharmaceutical and medicinal aerosols in the United States is bright. It is only recently that investigations in this area have been fruitful although there is still much to be learned and much to be developed. Lack of adequately trained individuals in the area of aerosols and pharmaceuticals has slowed this growth. Aerosol instruction has been included in the curricula of many of the Colleges of Pharmacy and the students are learning more and more of this fast growing industry. ★

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Lederle Line

(*From Page* 33)

tle—was slower in solving. The production department indicated to all concerned that the neck finish of the glass was not the same for both bottles (we had no breakage with the 15cc bottle.) The experts of the glass supplier told us how perfect the glass was; we complained again. After a year the supplier agreed that the two were not the same and is now supplying "good" glass. Our breakage problems ended.

The entire line, which is mainly portable and moved in and out as required, now consists of an air cleaner, Elgin twin-filler for product, the J-G aerosol unit, and a New Jersey Pony labeler. The J-G Unit is self-contained portable, 6'6" x 24" with an electrically driven link chain conveyor with lugs and attachable adaptable pucks, crimping heads for either cans or glass, a propellant filler, and fluorocarbon propellant accumulating pump and reservoir and measuring piston pump that has micrometer adjustment. All of these latter items are operated by air. In addition there is an electrically heated water test tank.

With solutions to our problems worked out, we are now operating at speeds that are far beyond our original expectations. On small bottles we run the line at 40 per minute and produce 13,500 to 15,000 packages per shift. On 16 oz. cans it is operated at 30 per minute—slower due to time required to balance gas pressure — and produces approximately 10,000 units per shift. Test loading has been done with relatively large volumes of fluorocarbon propellant—75cc to 150cc—via pressure loading with suitable valves. The test results were very satisfactory. However, due to manufacturing equipment requirements we are continuing to have the particular product contract packaged.

In conclusion, we at Lederle are very pleased with our small aerosol installation, and we believe it fits our needs and makes money for us. It allows us to maintain a low inventory policy, produce under our rigid quality control, protect some bulk products, and allows our Development Laboratory to see what we can do in production and work towards that end.

We continue to look for better methods and equipment and feel that one lesson that this installation has repeated to us is "Do not stop trying to improve. Whether it is a large or small operation, there are always newer and better methods, equipment and supplies. Persistence pays off. This is especially true if you will think and use the great abilities all of us have in one form or another around our plants." ★

Aerocide Dispensers

(*From Page* 27)

Aerocide to take over John Struthers, since it is reported that 10% of the population of the United States lies within a 200-mile radius of Rochester. A working relationship between the two companies is expected to facilitate the exchange of filling contracts in order to service U.S. and Canadian companies who wish to sell both markets. ★

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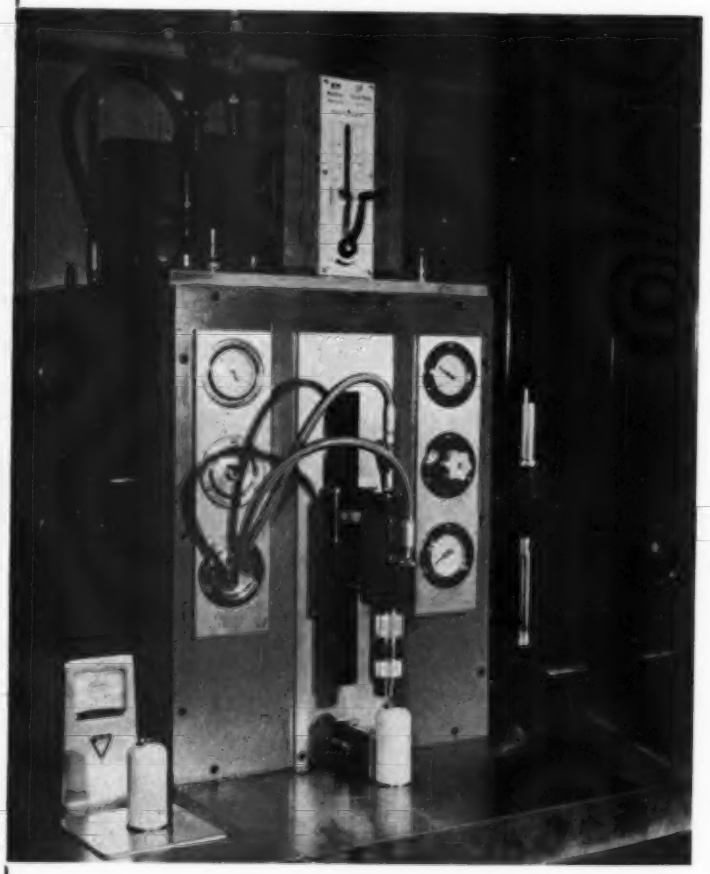

- Fully automatic—up to 40 units per minute.
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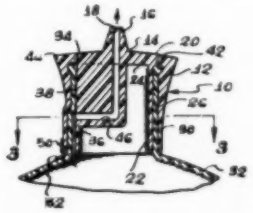
Sales Representative —
Druk-Pak Inc.
Limmatquai/Rossigasse 8
Zurich 1, Switzerland

New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the Commissioner of Patents, U. S. Patent Office, Washington 25, D. C., and remitting 25 cents for each copy desired.

3,006,514. DISPENSING VALVE. Issued Oct. 31 to Leonard M. Collins, Los Angeles, assignor to Pressure Dispensers, Inc., Hollywood, Calif., a corporation of California.



In combination, a dispensing valve and a container therefore having an outlet spout which comprises a dispensing valve housing; means defining within the interior of said housing a generally cylindrical channel, said chanel being slightly enlarged near one end thereof; means defining an outlet passage in communication with said generally cylindrical channel, and passing through said housing, said container outlet spout being adapted to rotatably and slidably engage the walls defining said channel and having an enlarged bead at one end thereof which is complemental to the enlargement in said channel whereby to prevent axial displacement of said valve from said spout and to prevent leakage from said container, said container spout having an inlet passage formed in the wall thereof communicating with the interior of said container, said inlet passage communicating with said outlet passage upon rotation of said dispensing valve housing to a given position and being sealed from said outlet passage means upon rotation of said dispensing valve housing less than 360° from said given position.

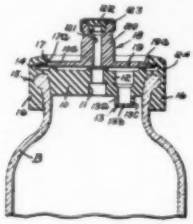
•

Design Registration 191,487. AEROSOL DISPENSER FOR PERFUME OR THE LIKE. Issued Oct. 3 to Philip H. Sagarin, Bridgeport, and William R. O'Donnell, Trumbull, Conn., assignors to VCA Inc., Bridgeport.

•

3,005,455. CONTAINER CLOSURE. Issued Oct. 24 to Edward J. Poitras and Carl W. Walter, Holliston, Mass., assignors to Baxter Laboratories, Inc.

A self-sealing closure for a container having an open mouth comprising in combination an elastic bushing adapted to plug the container mouth and having access and venting passages, valve means on said bushing and normally closing the venting passage, said valve means automatically operable to open said venting passage subject to differential pressure thereat, and a separable cap sealing the access passage and formed with a passage aligned with said access passage and closed by a puncturable diaphragm.



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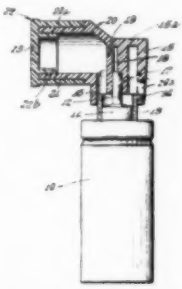
3,006,340. DISPENSING PACKAGE. Issued Oct. 31 to Philip Meshberg, 290 Euclid Ave., Fairfield, Conn.



A dispensing package for an aerosol comprising an aerosol container having an aerosol therein, valve means for dispensing a measured quantity of said aerosol for each operation thereof, said valve means including a projecting stem portion having a passage therein for said aerosol, means for directing said dispensed aerosol comprising a member mounted on said stem and having a laterally extending nozzle provided with a passage communicating with said passage in said stem, and pin and slot means interconnecting said member and container, said slot forming a tortuous path for said pin to prevent inadvertent movement of said member to operate said valve stem connected thereto, said pin and slot means being adapted to prevent operation of said member and said stem.

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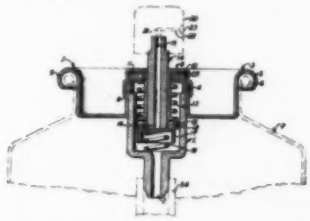
3,005,577. COMBINATION DISPENSING AND EXCESS PRESSURE RELIEF VALVE. Issued Oct. 24 to Milo E. Webster, Rochester, N. Y., assignor to Otto Bernz Co., Inc., Rochester, N. Y., a corporation of New York.

A combination dispensing and excess pressure relief valve comprising a valve housing with an open inlet end, means defining a dispensing passage-way extending through said housing, a first moveable valve member and cooperative valve seat sealing and dispensing passage-way, said first moveable valve member being moveable in a direction against fluid pressure from said inlet end of said housing to open said dispensing passage-way, a second moveable valve member and cooperative valve seat substantially coaxial with said first moveable valve member, and sealing said housing



from the flow of fluid therethrough from said inlet end, said second moveable valve member being moveable in a direction with fluid pressure from said inlet end of said housing to open said housing for the flow of fluid therethrough from said inlet end, and means resilienty urging said second valve member closed with a pre-determined force.

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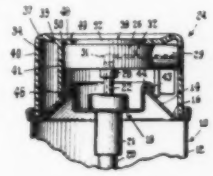
3,006,510. AEROSOL CAP CONSTRUCTION. Issued Oct. 31 to Philip H. Sagarin, Bridgeport, Conn., assignor to VCA, Inc., Bridgeport.



In an aerosol dispenser, a manually operable valve construction carried by a container, said construction including an upwardly extending, accessible and depressible actuating part having a side nozzle; and a fixed cap surrounding said depressible part and having a top wall provided with a recess to provide access thereto, said cap being mounted on the container and having guard portions surrounding said recess which are at least as high as the said depressible part to prevent accidental or inadvertent actuation of the part by contact with a broad-surfaced exterior object, and said cap having a pair of annular and concentric, spaced walls in the form of depending skirts at least one of which engages the container for support of the cap, said walls having aligned openings receiving the side nozzle of the actuating part and the top surfaces of the depressible part and of said top wall constituting substantiallly continuations of each other and together forming the top surface of the dispenser.

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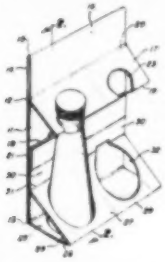
3,002,722. DISPLAY CARTON. Issued Oct. 3 to Raymond A. Cote, Monroe, La., assignor to Container Corp. of America, Chicago, Ill.

A display device formed from a single blank of foldable paperboard, for holding

vertically spaced upper and lower portions of a displayed article, comprising: a vertically extending rear wall; a pair of upper and lower article engaging members carried



by upper and lower portions, respectively, of said rear wall on one side thereof; said members having generally vertically aligned openings for engaging upper and lower portions of a displayed article; each of said members including a pair of forwardly converging inner and outer panels hingedly interconnected at their forward edges, the outer panel of each member having its rear edge hinged to said rear wall; a pair of attaching panels disposed between the members and hinged to rear edges of respective inner panels, said attaching panels extending toward each other and having overlapping portions disposed in generally parallel relation with said rear wall; one of said attaching panels being connected to said rear wall, and the other of said attaching panels being removably received between said one attaching panel and said rear wall.

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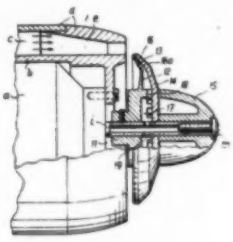
3,004,717. APPARATUS FOR PRODUCING AN AEROSOL. Issued Oct. 17 to Karl Flury, Adliswil, Zurich, Switzerland, assignor to Defensor A.G., Zurich.

Apparatus for producing an aerosol mist, comprising a motor-driven blower for producing an air current, two centrifugal disks driven by the motor and having peripheral edges engaging each other, means to supply a liquid axially between said disks, said liquid being thrown out in a film between the edges of said disks, and means for guiding said air current axially over said peripheral edges of the disks for breaking up said film into mist drops, one of said centrifugal disks being rigid and provided at its peripheral portion with a frusto-conical inner face, the other disk having an elastically pliable frusto-conical peripheral portion substantially complementary to the frusto-conical inner face of said rigid disk, the conical portion of said other disk



being arranged generally internally of the frusto-conical portion of said rigid disk, the peripheral edge of said other disk approaching the peripheral edge of said rigid disk due to centrifugal action to define therewith an annular aperture of diminshing size under increased speed of rotation.

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Design Registration 191,650. CASING FOR AN AEROSOL-SPRAY DISPENSER. Issued Oct. 24 to Ralph E. Kruck, Clinton, Conn., assignor to Metal Fabrications, Inc., Waterbury, Conn.

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A Correction

A story titled "Esso Sells 'Flit' trademark" on page 139 of the October issue was misleading from a number of standpoints. The fact is that Humble has licensed Black Leaf Products Co. to manufacture and sell "Flit' household insecticides for a number of years. It retains the trademark rights. Also, Esso has been merged into Humble Oil & Refining Co. and no longer has a separate corporate existence. Ownership of "Flit" has passed on to Humble.

Mrs. Milstone to Shulton

The appointment of Josephine Milstone as chemist has been announced by Shulton, Inc., Clifton, N. J. Prior to joining Shulton, Mrs. Milstone was a chemist in the cosmetic laboratory of International Flavors & Fragrances, Inc.

She received her B.S. from New York University.

Trade Mark Registrations

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U.S. Patent Office. In not all cases are there strictly aerosol trademarks, however, many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

CETRIL, for aerosol skin antiseptic and cleanser. Filed Nov. 28, 1960 by Menlo Park Laboratories, Inc., Edison, N. J., claiming first use Sept. 28, 1960.

MAGICAIDE, for ointment for treatment of skin rash. Filed Nov. 16, 1960 by The Mennen Co., Morristown, N. J., giving first use July 20, 1960.

SPLEK, for protective and decorative coating compositions for producing in a single spray application coatings providing particled color and/or multi-color effects. Filed April 4 by Airkote, Inc., New York, reporting first use in Jan. 1958.

PLASTI-DYE, for colored sprays for coloring vinyls and plastics. Filed March 23 by Meyer Magid, d.b.a. The Magi-Dyes Co., Palo Alto, Calif., with first use claimed for March 20.

SPRA-SAFE, for glass mold lubricant. Filed April 18 by Joseph Dixon Crucible Co., Jersey City, N. J., with first use given as July 27, 1960.

BOOT, for spray spotter for cleaning fabrics. Filed March 15 by Baxter Laboratories, Inc., Morton Grove, Ill., with first use reported as Oct. 6, 1960.

GLAMORENE, for instant spray starch for ironing purposes. Filed April 17 by Jerclaydon, Inc., Clifton, N. J., claiming first use Feb. 12.

FLURO-METHANE, for coolant spray for relief of painful muscle spasm. Filed March 30 by Gebauer Chemical Co., Cleveland, giving first use as Feb. 3 of previous year.

AD-HESE-AWAY, for surgical tape remover in liquid form. Filed Jan. 24 by Schuco Industries, Inc., New York, reporting first use July 7, 1958.

PAN-L-LIFE, for rust inhibitor spray. Filed May 9, 1960 by Leon G. Rockwell, d.b.a. Rockwell Specialties Co., Dearborn, Mich., giving first use May 1, 1960.

WALNUT GROVE, for chemical preparations used as insecticides, germicides, and disinfectants. Filed Oct. 31, 1960 by Walnut Grove Products Co., Atlantic, Iowa, giving first use as May 28, 1920.

VIEW, for window and glass cleaner. Filed April 21 by The Glasshouse Co., Wytheville, Va., with first use reported as May 31.

DYNACAINE, for local anesthetic. Filed March 6 by Graham Chemical Corp., Springfield Gardens, N. Y., reporting first use Feb. 17.

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AEROSOL CHEMIST, R & D, Experienced in all phases of aerosol formulating. Career opportunity with new-products-minded filler in Chicago area. Address Box 277, c/o AEROSOL AGE.

AEROSOL MECHANIC, ENGR., Fast-growing Chicago-area packager has career oppty. for right man with extensive experience in all phases of equipment design, construction, maintenance. Must be able to make own parts. Address Box 276, c/o AEROSOL AGE.

DIRECTOR RESEARCH & DEVELOPMENT: Management Consultant seeks for major aerosol valve manufacturer highly imaginative and creative graduate engineer with proven record, preferably holder of patents, and minimum fifteen years experience. Directly responsible to President for developing and directing new product activities and laboratory. All replies held by consultant in strictest confidence. Address Box 275, c/o AEROSOL AGE.

PLANT MANAGER: Aerosol valve manufacturer located in Midwest desires plant manager with fifteen years experience to operate efficiently a fully automated manufacturing operation with high volume output. Profit-minded with sound knowledge of industrial engineering and preventive maintenance essential. Replies will be held confidential. Address Box 274, c/o AEROSOL AGE.

SITUATIONS WANTED:

PRODUCTION MANAGER: Years experience in many concentrate-filled aerosols. Cans, bottles, both cold and pressure filled, with latest propellants. Knowledge to set up line and operate it from empty building to filled case. Hand fill to automatic lines. Maintained refrigeration, electrical and mechanical end as well as quality control, labeling, warehousing and shipping. Address Box 273 c/o AEROSOL AGE.

Gene Rose
QUALITY PRODUCTION — Pioneers in the aerosol field —utilizing the most advanced methods and modern equipment.
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Herzka Addresses Food Group

A. Herzka, B.Sc., A.R.I.C., president of Pressurized Packaging Consultants Ltd., London, delivered a paper on "Pressurized Food Products" at the Seventh International Symposium on Foreign Substances in Food, held in Belgrade Oct. 11-17. The Symposium was under the auspices of the International Commission of Food Industries (C.I.I.A.), The Permanent International Office of Analytical Chemistry (B.I.P.C.A.) and The European Packaging Federation. (E.P.F.). Mr. Herzka is a co-author of "Pressurized Packaging (Aerosols)."

IFF Offers Common Stock

International Flavors & Fragrances Inc., New York, has filed a registration statement with the Securities and Exchange Commission to cover a proposed public offering of 514,432 shares of its common stock, of which 105,000 shares will be sold by two stockholders and 409,432 shares will be sold by the company. The proceeds of the sale will be applied to the purchase and retirement of presently outstanding common shares held by a Dutch investment company. Smith, Barney & Co., Inc., will head a group to underwrite the offering. This will be the first time the company's shares have been offered to the public.

Incorporated in New York in 1909, International Flavors and Fragrances is a leading manufacturer of flavor and fragrance products used by manufacturers of a wide variety of consumer products. Fragrance products, which accounted for approximately 65% of the company's 1960 sales, are used principally in the manufacture of perfumes, toiletries, aerosols, cosmetics, soaps, and detergents. The company's customers include most of the major U.S. cosmetics and soap manufacturers. Flavor products are sold mainly to manufacturers of soft drinks, candies, dietary foods, ice cream, pharmaceuticals, and tobacco. Principal manufacturing facilities of the Company are located in the United States, the Netherlands, France and England.

Net sales in 1960 and in the six months ended June 30, 1961 were $34,195,000 and $18,208,000, respectively.

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Wirz Revamps Executive Staff

Robert F. Cox has been appointed board chairman of A. H. Wirz, Inc. and Townsend C. Cox, Jr. named president of the 125-year old Chester, Pa. firm of manufacturers of collapsible metal tubes and plastic containers. Other executive changes announced at the same time included H. Walter Rowan to executive vice-president and secretary-treasurer; Henry W. Cox, assistant secretary.

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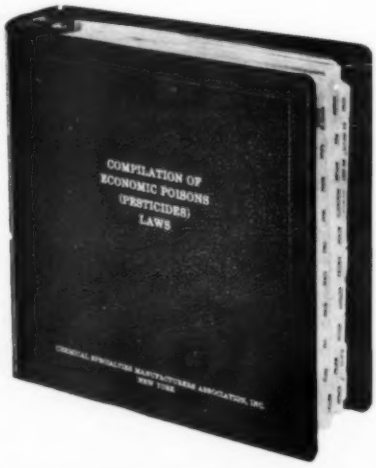

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Spray Patterns

PROBABLY because of its easy pace and lack of strain, the annual meeting of the Canadian Manufacturers of Chemical Specialties Association is always a pleasure to attend. Because the total attendance is still in the manageable figure of 200 to 250, it is possible to attend all important meetings, see the necessary customers or suppliers, and even visit local plants—without the "pushed" feeling such coverage would necessarily entail at the CSMA or some other large meeting.

* * *

Also appealing about the CMCS is a refreshing levity among the speakers, and here are two examples. George Hartz, Prentiss Chemical's very able technical sales representative for specialty sales, got up before the CMCS meeting to deliver a paper on "Butonate", his company's new insecticide. With deadly serious expression he began something like this: "Gentlemen, today I am going to show you something to which the common housefly has *never* developed a resistance." This was followed by a complicated unwrapping of what looked like a chemical chart. It turned out to be a flyswatter! Joe Gregory of Newman-Green, began his paper on "Aerosol Valves" with a salute to Ralph Legate, sales manager of Aerocide Dispensers and former Canadian district salesman for Precision Valve: "There is living proof for all of you that you must be nice to your competitors, you never know when they might become customers!"

* * *

Everywhere we hear word that major pharmaceutical marketers are readying large-volume aerosol products for test-marketing. In fact, all evidence points to early 1962 as the time when pharmaceuticals finally "break loose" and receive their just due from all pharmaceutical marketers. Valve, propellant, and container suppliers are all very optimistic and much of this seems to have rubbed off on those pharmaceutical company executives who count.

It may seem a morbid thought, but the big rush to construct fall-out shelters throughout the United States may do the aerosol industry some good. One essential item recommended for fall-out shelter equipment is an aerosol room deodorant (very properly, since the shelter must double as kitchen, living quarters, and toilet). This may be one method of getting the many non-users interested in trying out room deodorants — before they become necessary inside the shelter!

* * *

Albert Mojonnier, designer of the Mojonnier aerosol filling equipment (who sold out to Kartridg-Pak a few years ago), is still very much in the packaging industry. He is the supplier of the new polystyrene milk container described in the November issue of *Modern Packaging*. The bottle is being introduced by Cloverleaf Dairy, Downers Grove, Ill. and hand-fed mechanical filler is also by his company, Albert Mojonnier, Inc., Franklin Park, Ill.

* * *

In the face of the continuing success of aerosol hair sprays, Alberto-Culver Co., Melrose Park, Ill. is introducing a hair setting lotion in a bottle that looks somewhat like an aerosol but is actually a conventional sprayer. Called "Get Set" the product is advertised to "eliminate nightly pin-up"—in other words, it is another hair-spray product! For more on products that look like aerosols, but aren't really, see Jerry Michell's column on page 45.

* * *

Tinplate prices will very likely not be increased within the next few months. Price cuts of two cents per pound in aluminum ingot late in September (despite a 12-cent hourly boost in aluminum wages in August) have scared the steel industry away from some anticipated increases in the price of tinplate. Seems the steel industry is very sensitive about losing any more major chunks of business to aluminum.

"I'm here to put a stop to that advertising campaign you cooked up for our 'aerosol bomb.'"

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POWCO BRAND
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Sevin has broad application when combined with Pyrenone as an important ingredient of garden dusts, pet powders and in pressurized pet and horticultural sprays.

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